

Guitar Notes

Learning through Forms



Steve Adams and Peter Buhr © 2009*

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Music engraving by LilyPond

Cover Picture

Johannes Vermeer (1632-1675)

Young woman playing a guitar (The guitar player)

circa 1670-1672

Oil on canvas

Kenwood House, London

Technical comments on “The guitar player”:

The left-hand thumb should not be resting on the top of the guitar neck. Instead, it should be behind the neck to allow the left-hand fingers better access to the fretboard. The right-hand little-finger should not rest on the soundboard as this inhibits certain right-hand picking or strumming movements and dampens the sound.

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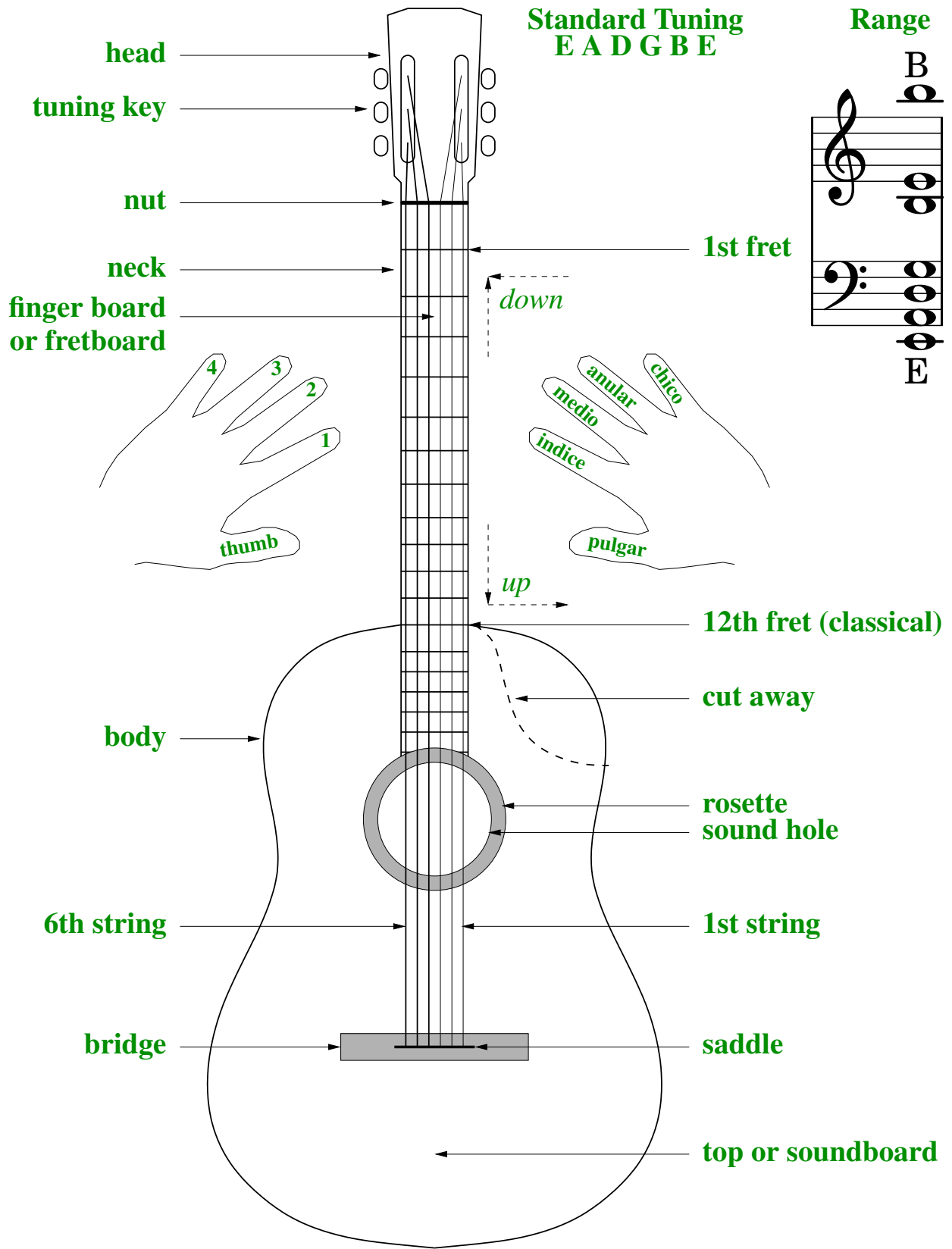
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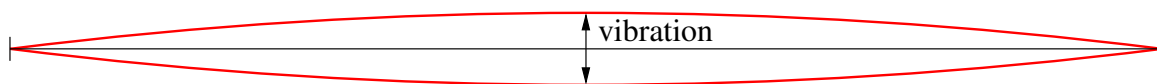
1 Nomenclature (right handed)



2 Guitar

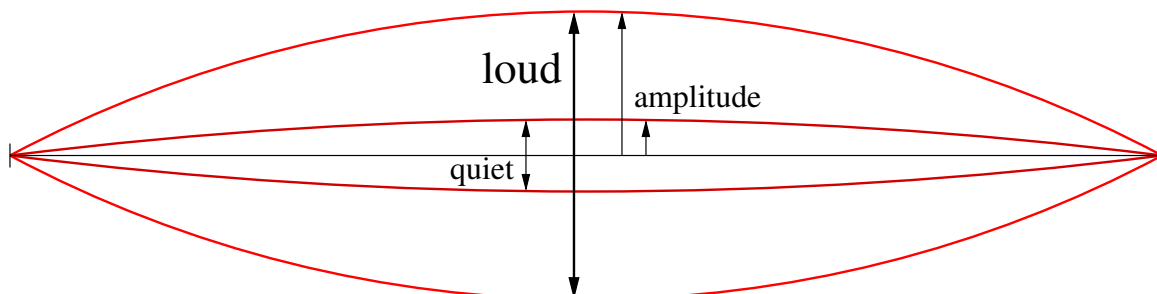
The guitar is a **string instrument** that is **plucked**/picked, called **pizzicato**, to vibrate the strings to generate sound. Often a guitar is **strummed** by plucking multiple strings in sequence (up or down). An **acoustic guitar** uses a large hollow body as a resonator to make conversion of the string vibration into sound more effective. Acoustic guitars are divided into two broad categories: **classical** (or classic [?]) style using a combination of nylon and steel strings, and **western-style** using all steel strings. An **electric guitar** transforms the vibration of steel strings, using electro-magnetic **pickups**, to an electric signal that is amplified and sent to one or more speakers to generate sound.

All string instruments (e.g., piano, violin, harp, guitar) generate sound by vibrating a string spanning two points.



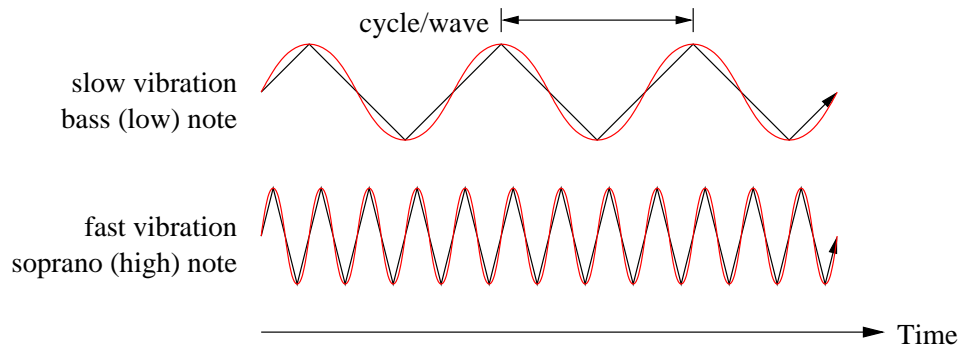
On a guitar, the string is suspended between the nut (at the top of the fretboard) and the saddle (located on the bridge). The string must be under **tension** between the two endpoints to vibrate, i.e., it must be pulled taut; without tension, the string hangs loose and does not vibrate. When plucked, a string vibrates causing the air surrounding it to vibrate; the vibration travels through the air to your ear causing the ear drum to vibrate; the ear drum vibration is transformed into electro-chemical signals and transmitted to the brain where you “hear” a sound. The sound is composed of two fundamental components: loudness (amplitude), which is primarily a sense of physical strength (quiet/loud), and pitch, which is primarily a sense of ordering (low/high).

Increasing the vibration size (**amplitude**), increases **loudness**, *but the pitch is the same*.



When a string is strummed/plucked hard it is pulled further out before release so amplitude is large, and hence, the sound is louder; when a string is strummed/plucked softly it is pulled a short distance before release so amplitude is small, and hence, the sound is quieter.

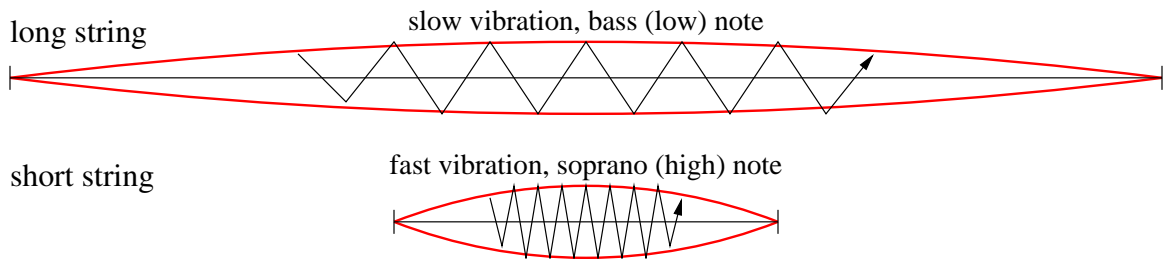
A vibrating string has a **fixed** fundamental **pitch**, which defines the musical note it generates. Pitch is the speed (**frequency**) the string moves from the top of the vibration to the bottom and back to the top (**cycle/wave**). Over time, this up/down movement can be represented as a continuous curve even though the string is not moving along.



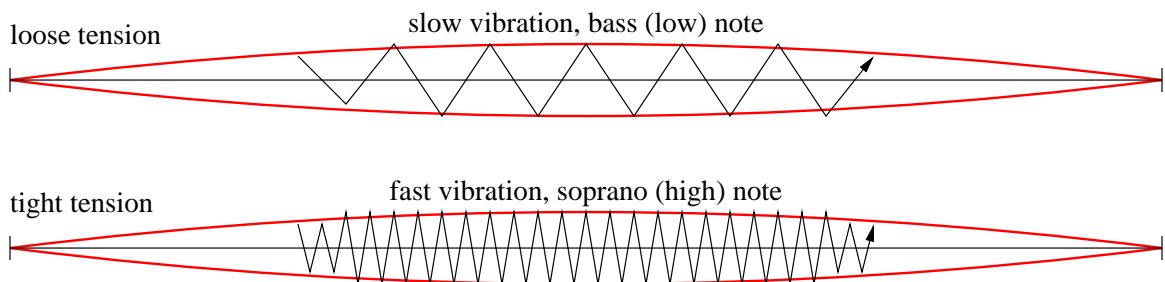
Frequency is measured in **Hertz** (Hz), which count the number of cycles in one second. Therefore, frequency (F) is inversely proportional to the cycle length (λ), $F \propto 1/\lambda$. For example, for $F = 20$ Hz, the size of one cycle is $1/20$ the total length of the 20 cycles that occur in a second. A slow vibration is a **bass** (low) note, e.g., frequency of 20 vibrations a second (20 Hertz). A medium vibration is a **tenor** (medium) note, e.g., frequency of 200 vibrations a second (200 Hertz). A fast vibration is a **soprano** (high) note, e.g., frequency of 2000 vibrations a second (2000 Hertz).

There are three factors that generate a string's pitch:

1. **length** – string frequency (F) is inversely proportional to the cycle length and the cycle length is twice the string length¹ (L): $\lambda = 2L$ so $F \propto 1/2L$. As L becomes smaller, i.e., the string is shortened, F increases, and the pitch is higher. As L becomes larger, i.e., the string is lengthened, F decreases, and the pitch is lower.

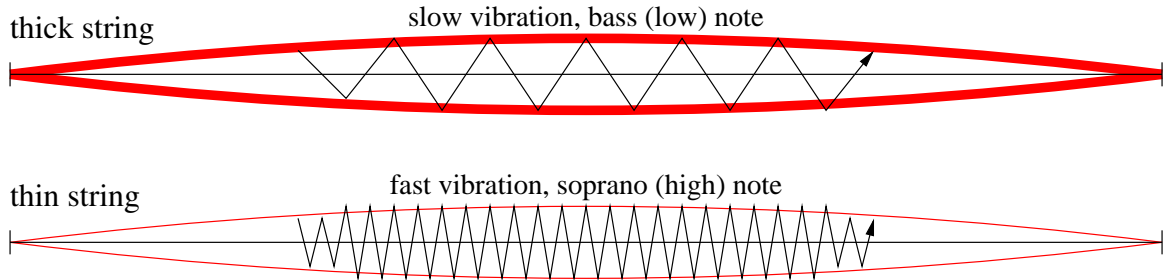


2. **tension** – string frequency (F) is proportional to the square root of the string tension (T): $F \propto \sqrt{T}$. As T becomes larger, i.e., the string is tightened, F increases, and the pitch is higher. As T becomes smaller, i.e., the string is loosened, F decreases, and the pitch is lower. Essentially, the higher tension pulls the string faster from the top to the bottom of the cycle and back again, causing the increase in frequency.



¹The string must move up (first length) and down (second length) to form a cycle.

3. **mass** – string frequency (F) is inversely proportional to the linear string density (μ) (mass of the string per unit length, e.g., mass in grams of a one centimeter length of string): $F = 1/\sqrt{\mu}$. As the density of the string material increases (e.g., a steel string is about 8 times more dense than a nylon string) or as the string becomes thicker (becomes heavier) the linear density increases, so F decreases and the pitch is lower. Similarly, as the string material becomes less dense or the string is thinner the linear density decreases (becomes lighter), F increases and the pitch is higher.



Combining the three factors for string pitch:

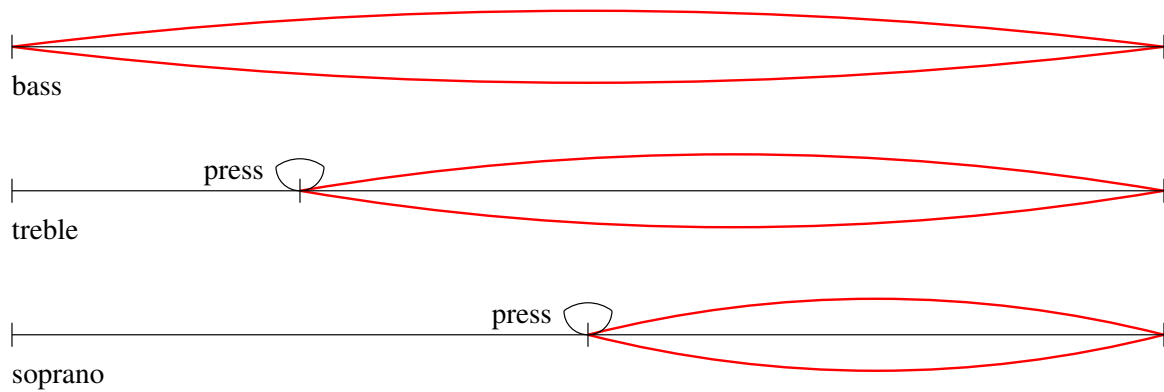
$$F = \text{length} \times \text{tension} \times \text{mass} = \frac{1}{2L} \times \sqrt{T} \times \sqrt{\frac{1}{\mu}} = \frac{1}{2L} \sqrt{\frac{T}{\mu}}$$

Solving for L , T , and μ in terms of the other variables:

$$L = \frac{1}{2F} \sqrt{\frac{T}{\mu}}, \quad T = 4 \times L^2 \times F^2 \times \mu, \quad \mu = \frac{1}{4 \times L^2 \times F^2 \times T}$$

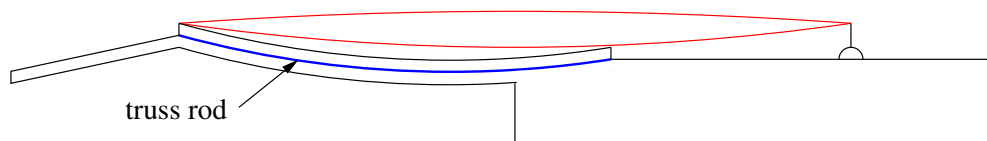
In general, tension is large to ensure good vibration (i.e., the string is held taut between the end points, but not too taut or the string breaks), and mass is small because even a thick string has a low mass. For example, a typical nylon string has the equivalent of a 7 kg (15 lbs) weight hanging from it but a linear density of only 0.001 kg/m. For a string of length 65 cm (0.65 m), the tension necessary for a treble frequency of 200 Hz (G string) is $T = 4 \times L^2 \times F^2 \times \mu = 4 \times 0.65^2 \times 200^2 \times 0.001 \approx 67$ newtons of force, which is equivalent to hanging a 6.9 kg weight on the end of the string. If the same string is used to generate a bass note of 20 Hz, the string must be $L = \frac{1}{2F} \sqrt{\frac{T}{\mu}} = \frac{1}{2 \times 20} \sqrt{\frac{200}{0.001}} \approx 11$ m (35 feet) long, which is impractical. To reduce the length of bass strings, the string is made thicker (more mass) with lower tension so it vibrates slower. However, a thicker string is harder to play loud because it stretches less (reducing the amplitude) and lower tension means the minimum amplitude to make a sound is larger, so there is a compromise between amplitude/frequency and making a string fit an instrument.

One technique to play from bass to soprano notes is to have strings with different lengths, one for each note. For example, a piano has 88 different length strings and can play 88 different notes. (In fact, a piano often has 2 or 3 strings for each note to generate more sound, so there can be from 210 to 250 strings!) However, a piano must still use strings of different mass to generate the bass notes or the piano would be too long. Another technique is to have a single long string where one or both endpoints are moved to change the length. A simple way of moving an endpoint is to add a new point by pressing on the string anywhere along its length.

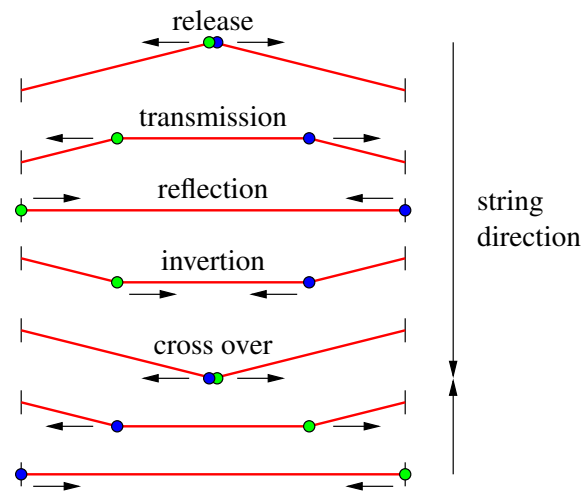


As the string is shortened, what happens to the sound? Again, this approach is impractical because the string must be too long to generate bass notes. A final technique is to have one or more strings and vary the tension during playing, which is done on the guitar by **bending** the string (pushing up on the string) or a whammy-bar (usually located at the bridge) on electric guitars, and pedals on the steel-pedal guitar and harp. While increasing tension for small changes in pitch is possible, the amount of increase in tension for large changes in pitch would break the string. For example, to increase the frequency for the nylon string above from 200 Hz to 2000 Hz, the force required is $T = 4 \times L^2 \times F^2 \times \mu = 4 \times 0.65^2 \times 2000^2 \times 0.001 \approx 6760$ newtons of force. This tension is equivalent to hanging a 690 kg weight on the end of the nylon string, causing the string to break.

So what approach does the guitar use? The guitar adopts multiple strings (4 to 12) with varying mass strings under relatively constant tension and changing the length of the strings to achieve its range of notes. Normally, the guitar strings are designed so the linear density of each string produces approximately the same tension for a given length. Hence, the forces are constant across the neck of the guitar to prevent twisting of the neck. While playing the guitar, pressing on a string to shorten it only increases the tension slightly in comparison to the total tension on a string. Steel strings have greater tension than nylon strings because of greater linear density, which pulls up on the neck of the guitar. To compensate for this large upward pull, a steel-string guitar often has a rod inside the neck of the guitar, called a **truss rod**, that is tighten to pull downward (pre-stress) to help flatten the guitar neck. Sometimes a small concave in the neck is useful to allow greater vibration distance for the strings, which increases the amplitude before **buzzing** (i.e., when the string touches the neck of the guitar).



The previous analysis assumes a string behaves as a repeating curved wave (sinusoidal). However, after a guitar string is plucked, it does not behave as a perfect wave at fixed amplitude and frequency. First, due to resistance from the air the string is pushing against and friction in the string, the amplitude decreases from the maximum of the string pull until the string stops vibrating. Second, plucking pulls the string into a “V” shape and then releases it.



The energy from the pull moves out in both directions towards the endpoints as two “kinks” in the string (green/blue dots). As the kinks approach the immovable endpoints, the kinks are pulled down, which correspondingly pulls the string between them down, until the kinks disappear momentarily at the endpoints and the string is straight for an instant. The kinks then bounce off the endpoints (like a ball hitting a wall) and reflect back along the string towards the point where the string was plucked. However, the reflection is inverted because the string is still moving downwards and wants to continue moving in that direction (momentum), which carries the string past the position of rest. When the kinks reach the point where the string was plucked, they cross over each other towards the opposite endpoints. However, the string cannot continue moving downwards because the immovable endpoints now pull back on the string, so the string stops and changes direction. As the string vibrates (many times per second), the sharp kinks from the initial pluck merge (*is this true*) quickly as they reflect and cross over, forming a smooth curved wave as the single kink moves from endpoint to endpoint. Therefore, the sound of a plucked string begins bright and then mellows as the kinks become a wave. The initial brightness can be sustained by plucking the string closer to an endpoint as it takes longer for the kinks to subside into a wave with crests in the middle of the string. Normally, a guitar string is plucked about 3/4 of the way along the string as that is the natural position of the hand, generating a bright initial sound that mellows quickly. Plucking the string near the middle is called **tasto**; plucking the string near the bridge is called **ponticello**.

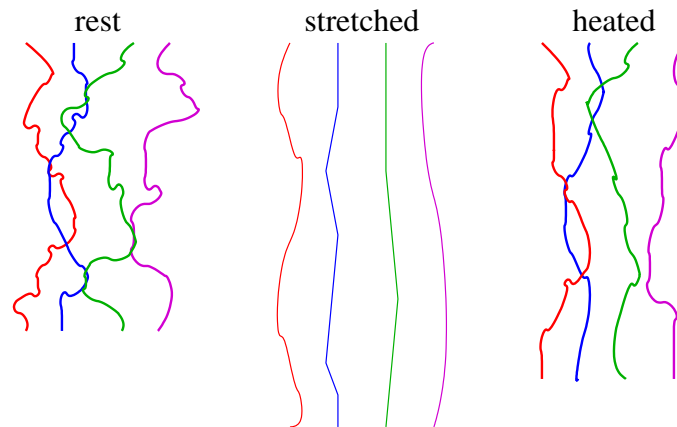
Discuss harmonics, include picture of the shape of a guitar string vibrating with harmonics. String can only have fixed number of nodes along its length. The ones at unnatural frequencies cancel out.

A guitar can have frets, to generate a discrete set of vibrations, or be fretless, and generate an infinite set of vibrations. Explain why frets are positioned at varying spacing along the neck. Slight adjustments on the placement of the frets can compensate for the difference in tension associated with shortening the string at that point.

Discuss the non-uniform tuning of the guitar, 3rd, on the B.

As a string instrument sits, the strings gradually stretch due to the tension, decreasing (**flattening**) the pitch, so it must be retuned. (Why is the pitch flattened?) After tuning a guitar with nylon strings, there is an unusual effect: the nylon strings increase pitch (**sharpen**) as the guitar is played. This effect is counter intuitive because as energy is put into a string by plucking it and inducing it to vibrate, the string becomes warmer, and warmer objects normally expand. If a string expands, it lengthens, which decreases its pitch; therefore, the sound should flatten not sharpen but that is not what happens for

nylon strings. In 1805, John Gough made the following observation on the properties of a rubber strip: increasing the temperature of a stretched rubber strip induces it to contract. The reason for this phenomenon is that plastics like nylon or rubber are made of chain-like molecules called polymers. These polymer chains are kinked at rest.



When the material is stretched, the molecular chains extend by rotating the atomic bonds joining the atoms along the chain to remove kinks. This process lowers the energy of the chains and removes many of the kinks. As this material is heated via pulling or vibrating, the heat causes some bonds to rotate back to higher energy states, reintroducing the kinks, which pulls on the molecular chains increasing tension and raising the pitch. Hence, as a guitar string is tightened during retuning, the stretching injects heat into the strings; furthermore, as the guitar is played, more heat is injected into the string through vibration. In both cases, the heat causes a nylon string to contract rather than expand, which sharpens the pitch. The result is that guitar players retune the nylon strings slightly *below* the required pitch with the understanding that these strings move towards their correct pitch after several minutes of playing. (Some minor adjusts are often necessary at this point.) Finally, it is interesting to contrast the behaviour of a steel versus a nylon string. A steel string actually expands during play due to the injection of heat because steel is not made of molecular chains; instead, the molecules are organized in a crystalline structure that only expands through thermal vibration rather than a mechanical change in shape. Hence, a steel string flattens its pitch during play, but the amount of expansion of a steel string given the small input of heat is insignificant, so its pitch is virtually constant during play.

2.1 Questions

1. The distance between the nut and the saddle of a classical guitar is approximately 65 cm. The approximate mass of classical guitar strings from the 6th to the 1st string are: E – XX g, A – XX g, D – XX g, G – XX g, B – XX g, e – XX g. The approximate frequency of guitar strings from the 6th to the 1st string are: E – 82 Hz, A – 110 Hz, D – 147 Hz, G – 196 Hz, B – 247, e – 330 Hz. Show the tension on each string is similar.
2. For a classical guitar, if a simple song with few notes is played quietly, and then it is followed by a complex song with many notes and loud passages, what can happen to the guitar tuning?

3 Writing Music

There are an infinite number of frequencies so one way of writing music is for each sound write its frequency and duration, e.g.,

440 Hz, 2 ms | 320.4 Hz, 5 ms | 0 Hz, 3 ms | ...

where 0 Hz indicates silence and 3 ms indicates a time span of 3 milliseconds. It is even possible to specify multiple notes played simultaneously:

440 Hz, 2 ms | 320.4 Hz, 5ms | 0 Hz, 3ms | ...

However, the human ear can only hear a subset of frequencies: at best 15 Hz to 20,000 Hz under perfect conditions, but more commonly 40 Hz to 15,000 Hz. (Some animals like bats can hear sounds between 20 Hz and 150,000 Hz.) Hence, there is little point in writing music for sounds that cannot be heard. As well, instruments can only play a subset of frequencies. Essentially, the larger the instrument, the larger its range of frequency and amplitude. For example, the largest instrument is the pipe organ, with a frequency range of 16 to 8,000 Hz (fundamentals only) and can produce sounds loud enough to fill a cathedral. A grand piano has a frequency range from 27.5 Hz to 4186 Hz, and is quite loud due to replicated strings. The average human vocal chord is very small and only has a frequency range of about 300 to 700 Hz in the range of 90 to 1,000 Hz. For string instrument, the lowest note is limited by the longest length and maximal linear density of a string, plus the minimal tension for vibration. The highest note is limited by the shortest length and minimal linear density of a string, plus the maximal tension for vibration (without breaking the string). Therefore, a reasonable range of frequencies for written music is from 20 to 8,000 Hz, which covers virtually all traditional instruments, but not necessary modern electronic instruments.

After selecting a reasonable fixed range, there still exist an infinite number of different frequencies within the range. Again for many instruments there is a limit to the minimal difference between frequencies. There cannot be an infinite number of pipes in a pipe organ, or keys on a piano, or holes in a clarinet. For string instruments, when pressing on a string to change its length, the accuracy of the press limits the minimal difference, i.e., it is unlikely that a finger can move accurately a thousandth of an centimeter from its current position. Therefore, it is reasonable to limit the number of discrete notes within a fixed range with a reasonable spacing between each note that can be accurately created by the instrument and musician. Now a decision has to be made on dividing the range into discrete intervals that works for all instruments. A natural division point is each time a frequency doubles. For example, selecting a starting point for the frequency range of 27.5 Hz, the doubling values 55, 110, 220, 440, 880, 1760, 3520, etc., represent nice discreet spacing for a number of reasons. Frequency doubling are perceived by humans as points of commonality, i.e., a doubled frequency sounds the same only with a lower/higher pitch. People often believe the same sound is being played even when the frequency is doubled. The distance between doublings is called an **octave**. An arbitrary decision has been made to choose the doubling series starting at 27.5 Hz and call it the “A” or “Do” series, where each doubling is numbered, $A_0 = 27.5$ Hz, $A_1 = 55$ Hz, etc. In effect, this major subdivision is like a radix in a counting system, e.g., 0, 10, 20, 30, ...

So now the frequency range has major subdivisions, but the notes sound the same, just higher or lower, which makes for rather boring music. To obtain more sounds, it now remains to divide up the octave into a discrete number of intervals, like subdividing the radix 10 into 0, 1, ..., 8, 9; unfortunately, it now gets complicated. The obvious thing to do is divide up the octave interval into N equal parts. Again, it is necessary to go back to the human auditory system to divide up the octave. People perceive only certain sounds and combinations of sounds as pleasant. While different cultures do teach people to enjoy some sounds better than others, there are some universal sounds that are

perceived as good and bad. Pythagoras noted that certain ratios of sound are fundamentally pleasing. Therefore, to generate pleasant sounds the octave needs to be divided into frequencies that are based on these ratios. The first ratio is 1:2, dividing the vibration in half to generate an octave.

Each note defines a frequency or pitch (sound).

Two forms of written music: notes versus tablature.

Notes are mostly universal while tablature is instrument specific.

octave is a doubling of a frequency 27.5 55 110 220 440 880 1760 3520

piano has 88 notes $88 / 12 = 7 \frac{1}{3}$ octaves from 27.5 to 4186 Hz

finite number of subdivisions within an octave that generate pleasant sounds

western music divides an octave into 12 parts, each part is called a note

notes are named using letters and #, b symbols C C# D D# E F F# G G# A A# B or names for singing So

Fi la ... (check)

In absolute tuning, letter A is defined as 440 Hz. If A shifts +- eps, all notes shift accordingly.

Notational music use lines and spaces between lines to denote notes

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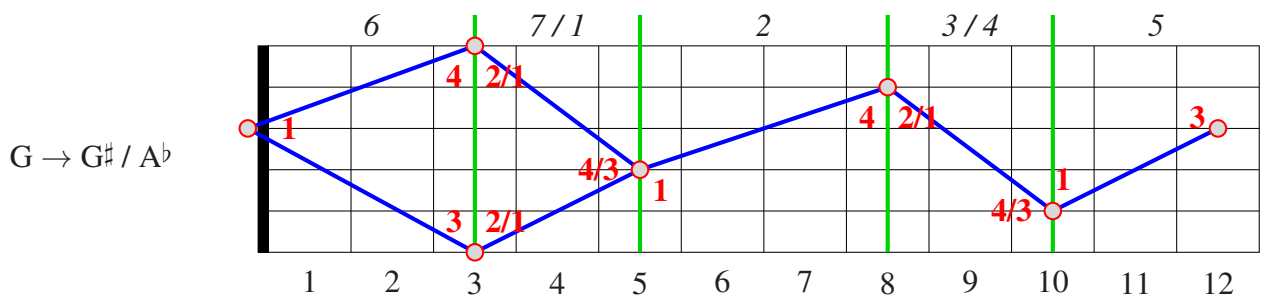
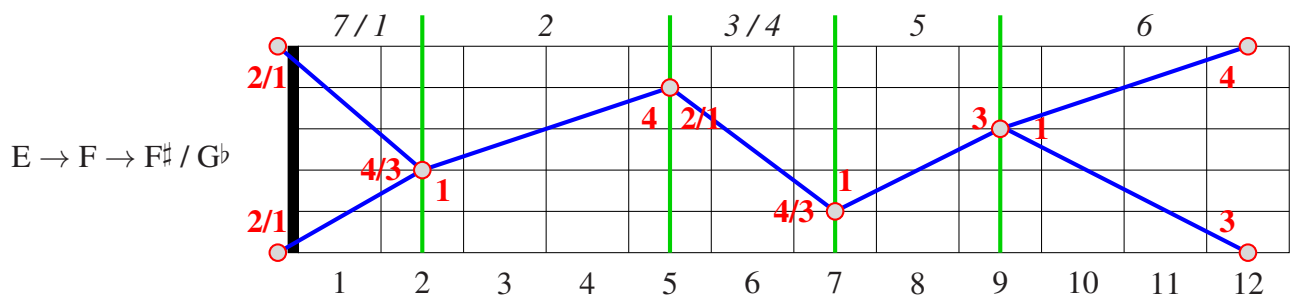
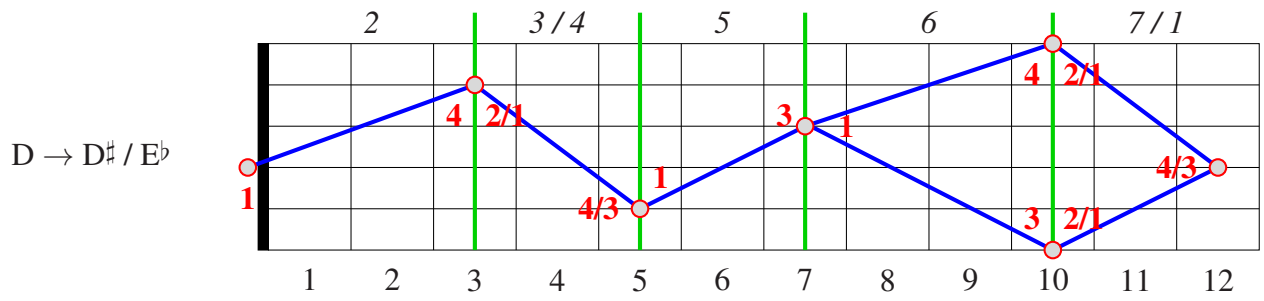
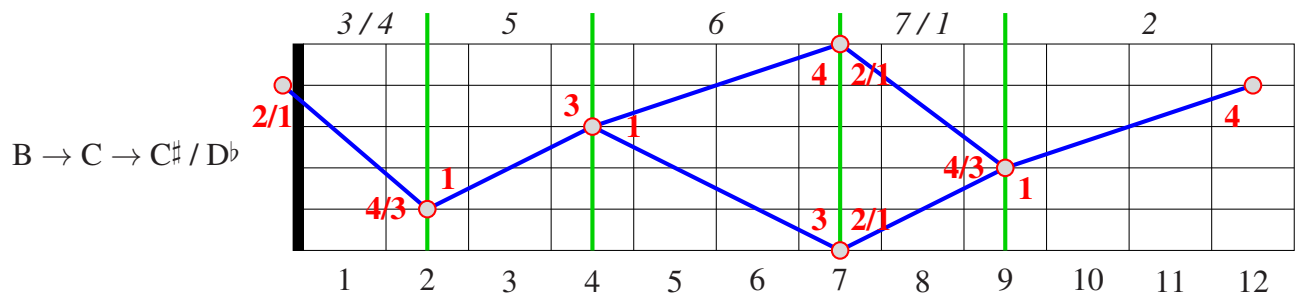
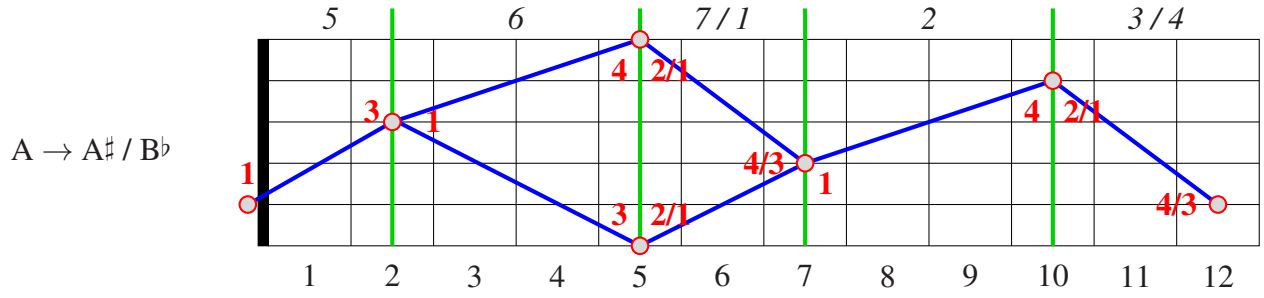
takes 4 lines and 3 spaces to represent a scale of 12 notes

For piano, with $7 \frac{1}{3}$ octaves * 4

pipe organ can have 9 octaves

The guitar has the same range of notes as the cello, and cello music is normally written in the bass clef basso . However, guitar music is normally written in the treble clef treble so the music is easily readable with other instruments, like the piano or a singer. To be accurate about the range of notes for guitar music, the treble clef is written with a small 8 under it treble_8 , indicating the music is actually played an octave down from what is written.

5 Roots (Tonic, I)



6 E: 6th/1st String Routine

E F G A B C D E
0 1 3 5 7 8 10 12

6.1 Practise

NAME NOTE AND FRET!

1. up and down naturals
2. up and down every fret
3. in the order:

C F B^b E^b A^b D^b G^b B E A D G

7 Form I

	Root Picture	Chord	Scale
Normal			
Open			

7.1 Practise

In the order:

C F B^b E^b A^b D^b G^b B E A D G

play:

1. root picture
2. chord
3. scale
 - a) start/end low note
 - b) start/end high note
 - c) start/end at middle root notes

8 A: 5th String Routine

A B C D E F G A
 0 2 3 5 7 8 10 12

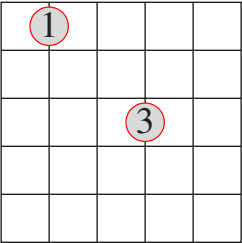
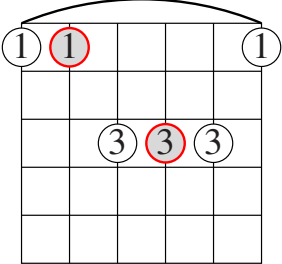
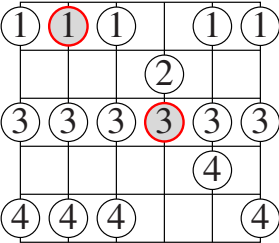
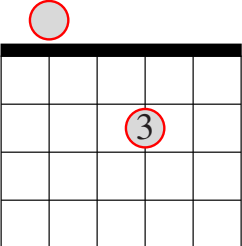
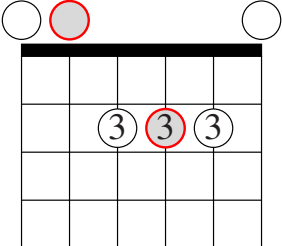
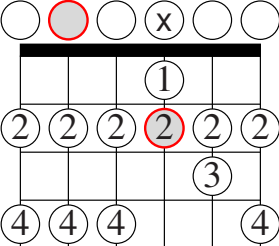
8.1 Practise

NAME NOTE AND FRET!

1. up and down naturals
2. up and down every fret
3. in the order:

C F B^b E^b A^b D^b G^b B E A D G

9 Form V

	Root Picture	Chord	Scale
Normal			
Open			

9.1 Practise

In the order:

C F B^b E^b A^b D^b G^b B E A D G

play:

1. root picture
2. chord
3. scale
 - a) start/end low note
 - b) start/end high note
 - c) start/end at middle root notes

10 D: 4th String Routine

D E F G A B C D
0 2 3 5 7 9 10 12

10.1 Practise

NAME NOTE AND FRET!

1. up and down naturals
2. up and down every fret
3. in the order:

C F B \flat E \flat A \flat D \flat G \flat B E A D G

11 Form II

	Root Picture	Chord	Scale
Normal			
Open			

11.1 Practise

In the order:

C F B \flat E \flat A \flat D \flat G \flat B E A D G

play:

1. root picture
2. chord
3. scale
 - a) start/end low note
 - b) start/end high note
 - c) start/end at middle root notes

12 G: 3rd String Routine

G	A	B	C	D	E	F	G
0	2	4	5	7	9	10	12

12.1 Practise

NAME NOTE AND FRET!

1. up and down naturals
2. up and down every fret
3. in the order:

C F B^b E^b A^b D^b G^b B E A D G

13 Form VI

	Root Picture	Chord	Scale
Normal			
Open			

13.1 Practise

In the order:

C F B^b E^b A^b D^b G^b B E A D G

play:

1. root picture
2. chord
3. scale
 - a) start/end low note
 - b) start/end high note
 - c) start/end at middle root notes

14 B: 2nd String Routine

B	C	D	E	F	G	A	B
0	1	3	5	6	8	10	12

14.1 Practise

NAME NOTE AND FRET!

- up and down naturals
- up and down every fret
- in the order:

C F B^b E^b A^b D^b G^b B E A D G

15 Form IV

	Root Picture	Chord	Scale
Normal			
Open			

15.1 Practise

In the order:

C F B^b E^b A^b D^b G^b B E A D G

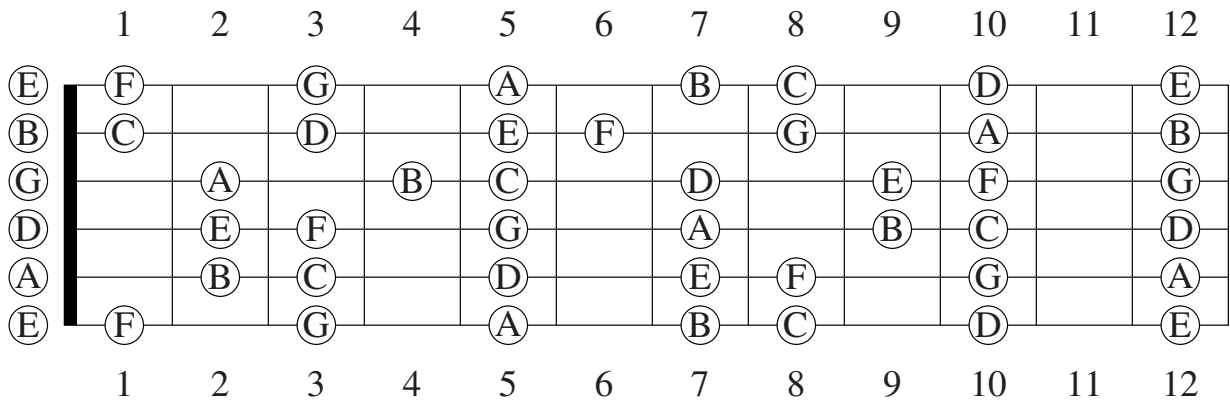
play:

- root picture
- chord
- scale
 - start/end low note
 - start/end high note
 - start/end at middle root notes

16 1st: 6 String Note Review

In order, name note and fret (3 minute time limit ⇒ 24 tempo):

C ₈	F ₁	B ^b ₆	E ^b ₁₁	A ^b ₄	D ^b ₉	G ^b ₂	B ₇	E ₀	A ₅	D ₁₀	G ₃
C ₃	F ₈	B ^b ₁	E ^b ₆	A ^b ₁₁	D ^b ₄	G ^b ₉	B ₂	E ₇	A ₀	D ₅	G ₁₀
C ₁₀	F ₃	B ^b ₈	E ^b ₁	A ^b ₆	D ^b ₁₁	G ^b ₄	B ₉	E ₂	A ₇	D ₀	G ₅
C ₅	F ₁₀	B ^b ₃	E ^b ₈	A ^b ₁	D ^b ₆	G ^b ₁₁	B ₄	E ₉	A ₂	D ₇	G ₀
C ₁	F ₆	B ^b ₁₁	E ^b ₄	A ^b ₉	D ^b ₂	G ^b ₇	B ₀	E ₅	A ₁₀	D ₃	G ₈
C ₈	F ₁	B ^b ₆	E ^b ₁₁	A ^b ₄	D ^b ₉	G ^b ₂	B ₇	E ₀	A ₅	D ₁₀	G ₃



17 Form VII & Form III

	VII	Root Picture	Chord	Scale
Normal				
Open				
III				
Normal				
Open				

17.1 Practise

In the order:

C F B^b E^b A^b D^b G^b B E A D G

play:

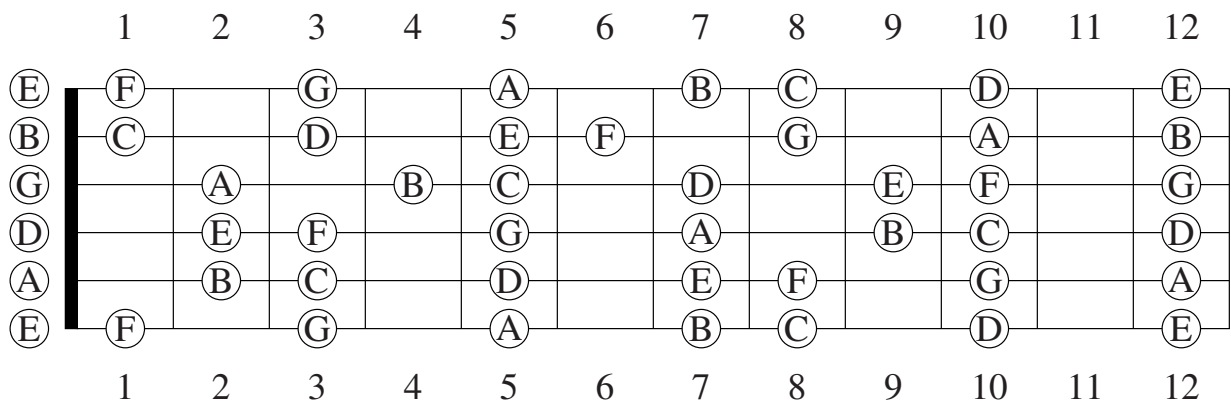
1. root picture
2. chord
3. scale
 - a) start/end low note
 - b) start/end high note
 - c) start/end at middle root notes

18 2nd: 6 String Note Review

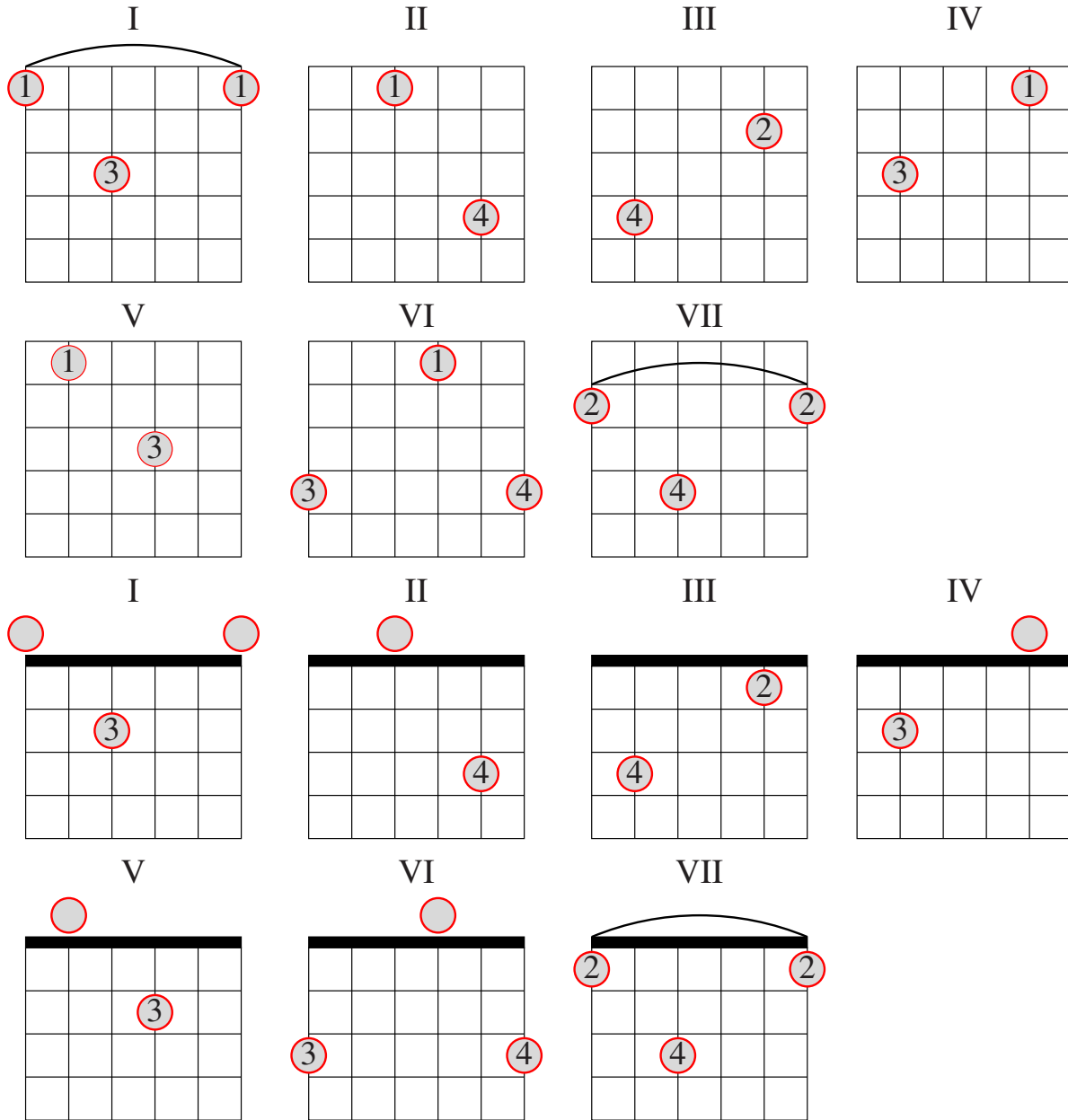
In order, name note and fret (3 minute time limit ⇒ 24 tempo):

play from:

C ₈	C ₃	C ₁₀	C ₅	C ₁	C ₈	6th to 1st string
F ₁	F ₆	F ₁₀	F ₃	F ₈	F ₁	1st to 6th string
B ^b ₆	B ^b ₁	B ^b ₈	B ^b ₃	B ^b ₁₁	B ^b ₆	6th to 1st string
E ^b ₁₁	E ^b ₄	E ^b ₈	E ^b ₁	E ^b ₆	E ^b ₁₁	1st to 6th string
A ^b ₄	A ^b ₁₁	A ^b ₆	A ^b ₁	A ^b ₉	A ^b ₄	6th to 1st string
D ^b ₉	D ^b ₂	D ^b ₆	D ^b ₁₁	D ^b ₄	D ^b ₉	1st to 6th string
G ^b ₂	G ^b ₉	G ^b ₄	G ^b ₁₁	G ^b ₇	G ^b ₂	6th to 1st string
B ₇	B ₀	B ₄	B ₉	B ₂	B ₇	1st to 6th string
E ₀	E ₇	E ₂	E ₉	E ₅	E ₀	6th to 1st string
A ₅	A ₁₀	A ₂	A ₇	A ₀	A ₅	1st to 6th string
D ₁₀	D ₅	D ₀	D ₇	D ₃	D ₁₀	6th to 1st string
G ₃	G ₈	G ₀	G ₅	G ₁₀	G ₃	1st to 6th string



19 Root Pictures



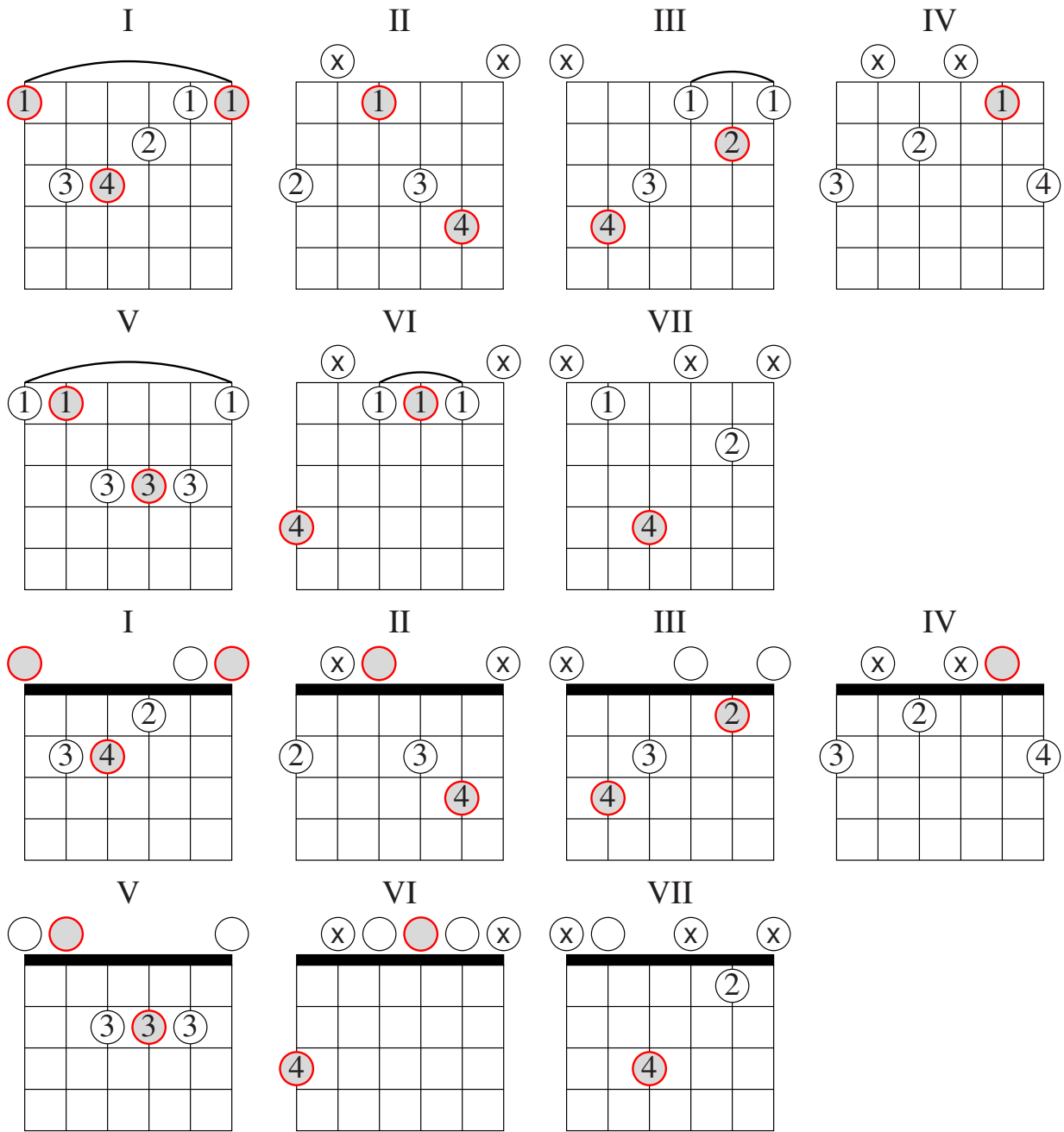
19.1 Practise

In the order:

C_{III} F_{VII} B^b_{V} E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV} E_I A_V D_{II} G_{VI}

REVIEW #1: Play up/down all 7 forms for all 12 keys.

20 Major Chord (1_M3_m3_m5_P4)



20.1 Practise

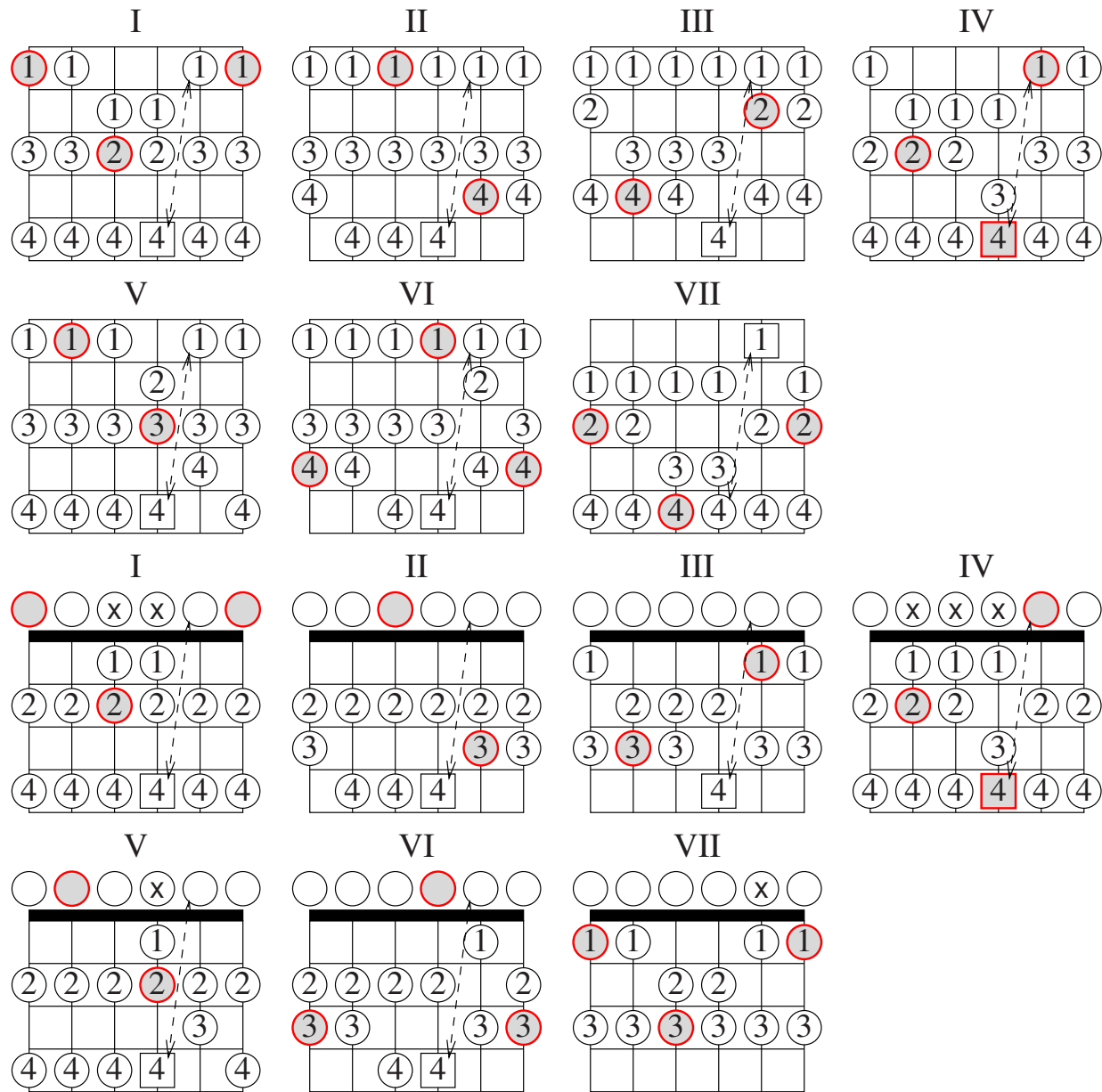
In the order:

C_{III} F_{VII} B^b_V E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV} E_I A_V D_{II} G_{VI}

Review #1:

1. root picture and chord
2. chord only

21 Major (Ionian) Scale (1_T2_T3_S4_T5_T6_T7_S)



21.1 Practise

In the order:

C_{III_0} F_{VII_0} B^b_V E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VI_0}

Review #1:

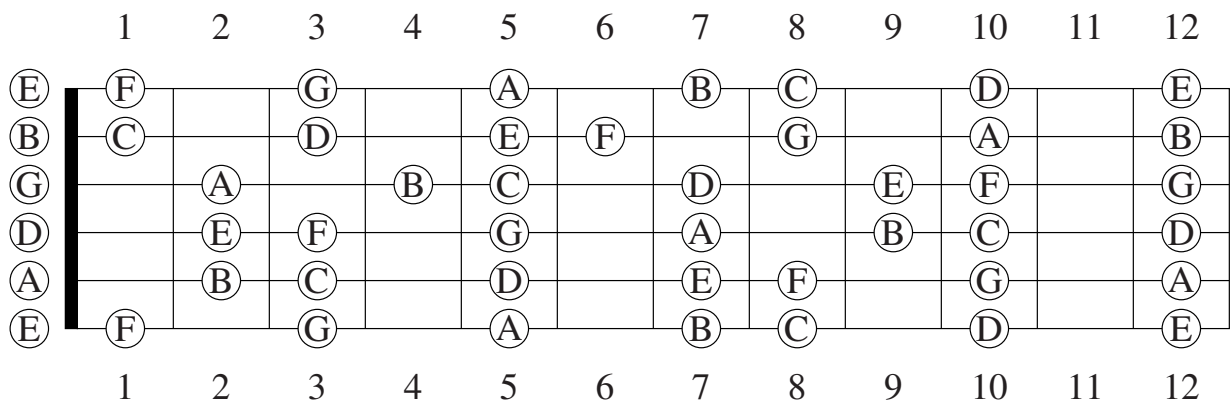
1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

22 3rd: 6 String Note Review

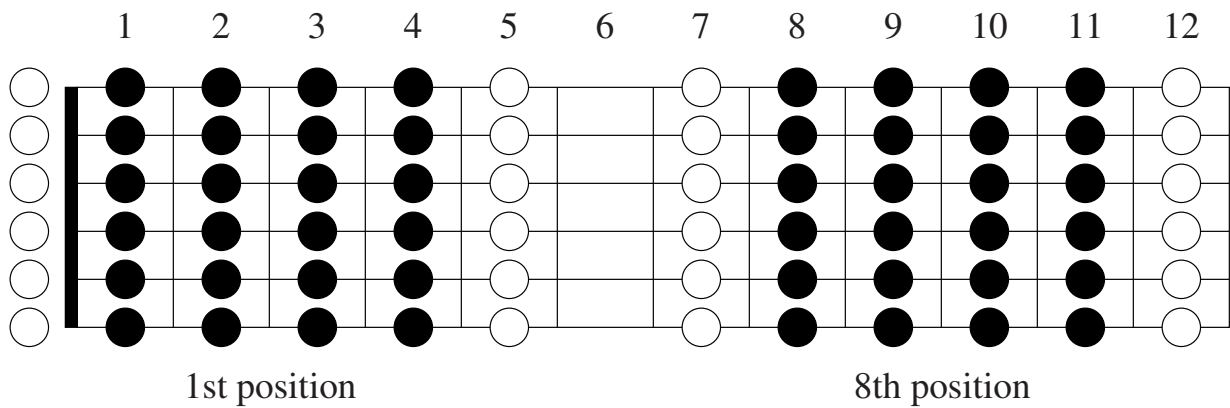
In order, name note(s) (4 minute time limit ⇒ 18 tempo):

						play from:
E ₀	A ₀	D ₀	G ₀	B ₀	E ₀	6th to 1st
F ₁	C ₁	G [#] ₁ /A ^b ₁	D [#] ₁ /E ^b ₁	A [#] ₁ /B ^b ₁	F ₁	1st to 6th
F [#] ₂ /G ^b ₂	B ₂	E ₂	A ₂	C [#] ₂ /D ^b ₂	F [#] ₂ /G ^b ₂	6th to 1st
G ₃	D ₃	A [#] ₃ /B ^b ₃	F ₃	C ₃	G ₃	1st to 6th
G [#] ₄ /A ^b ₄	C [#] ₄ /D ^b ₄	F [#] ₄ /G ^b ₄	B ₄	D [#] ₄ /E ^b ₄	G [#] ₄ /A ^b ₄	6th to 1st
A ₅	E ₅	C ₅	G ₅	D ₅	A ₅	1st to 6th
A [#] ₆ /B ^b ₆	D [#] ₆ /E ^b ₆	G [#] ₆ /A ^b ₆	C [#] ₆ /D ^b ₆	F ₆	A [#] ₆ /B ^b ₆	6th to 1st
B ₇	F [#] ₇ /G ^b ₇	D ₇	A ₇	E ₇	B ₇	1st to 6th
C ₈	F ₈	A [#] ₈ /B ^b ₈	D [#] ₈ /E ^b ₈	G ₈	C ₈	6th to 1st
C [#] ₉ /D ^b ₉	G [#] ₉ /A ^b ₉	E ₉	B ₉	F [#] ₉ /G ^b ₉	C [#] ₉ /D ^b ₉	1st to 6th
D ₁₀	G ₁₀	C ₁₀	F ₁₀	A ₁₀	D ₁₀	6th to 1st
D [#] ₁₁ /E ^b ₁₁	A [#] ₁₁ /B ^b ₁₁	F [#] ₁₁ /G ^b ₁₁	C [#] ₁₁ /D ^b ₁₁	G [#] ₁₁ /A ^b ₁₁	D [#] ₁₁ /E ^b ₁₁	1st to 6th
E ₁₂	A ₁₂	D ₁₂	G ₁₂	B ₁₂	E ₁₂	6th to 1st



23 Positions

The N th position spans fret positions $N - 1$ to $N + 4$, e.g., 1st position spans frets 0 to 5 and 8th position spans frets 7 to 12.



23.1 Practise

In the following orders:

- perfect 4ths:** C F B^b E^b A^b D^b G^b B E A D G
- perfect 5ths:** G D A E B G^b D^b A^b E^b B^b F C
- chromatic up:** C C[#]/D^b D D[#]/E^b E F F[#]/G^b G G[#]/A^b A A[#]/B^b B
- chromatic down:** B A[#]/B^b A G[#]/A^b G F[#]/G^b F E D[#]/E^b D C[#]/D^b C
- minor 3rds:** C E^b G^b A F A^b B D B^b D^b E G
- major 6ths:** G E D^b B^b D B A^b F A G^b E^b C

REVIEW #2: In a single position (6 fret area), play:

1. root picture
2. chord
3. scale

Look in the 3 lowest frets of position for root note.

For example, the sequence for perfect 4ths from positions 1 to 12 is:

1st:	C ^{III}	F ^{VII}	B ^{bV}	E ^{bII}	A ^{bVI}	D ^{bIII}	G ^{bVII}	B ^{IV}	E ^I	A ^V	D ^{II}	G ^{VI}
2nd:	C ^{IV}	F ^I	B ^{bV}	E ^{bII}	A ^{bVI}	D ^{bIII}	G ^{bVII}	B ^V	E ^{II}	A ^{VI}	D ^{III}	G ^{VII}
3rd:	C ^V	F ^{II}	B ^{bVI}	E ^{bIII}	A ^{bVII}	D ^{bIV}	G ^{bI}	B ^V	E ^{II}	A ^{VI}	D ^{III}	G ^{VII}
4th:	C ^V	F ^{II}	B ^{bVI}	E ^{bIII}	A ^{bVII}	D ^{bV}	G ^{bII}	B ^{VI}	E ^{III}	A ^{VII}	D ^{IV}	G ^I
5th:	C ^{VI}	F ^{III}	B ^{bVII}	E ^{bIV}	A ^{bI}	D ^{bV}	G ^{bII}	B ^{VI}	E ^{III}	A ^{VII}	D ^V	G ^{II}
6th:	C ^{VI}	F ^{III}	B ^{bVII}	E ^{bV}	A ^{bII}	D ^{bVI}	G ^{bIII}	B ^{VII}	E ^{IV}	A ^I	D ^V	G ^{II}
7th:	C ^{VII}	F ^{IV}	B ^{bI}	E ^{bV}	A ^{bII}	D ^{bVI}	G ^{bIII}	B ^{VII}	E ^V	A ^{II}	D ^{VI}	G ^{III}
8th:	C ^{VII}	F ^V	B ^{bII}	E ^{bVI}	A ^{bIII}	D ^{bVII}	G ^{bIV}	B ^I	E ^V	A ^{II}	D ^{VI}	G ^{III}
9th:	C ^I	F ^V	B ^{bII}	E ^{bVI}	A ^{bIII}	D ^{bVII}	G ^{bV}	B ^{II}	E ^{VI}	A ^{III}	D ^{VII}	G ^{IV}
10th:	C ^{II}	F ^{VI}	B ^{bIII}	E ^{bVII}	A ^{bIV}	D ^{bI}	G ^{bV}	B ^{II}	E ^{VI}	A ^{III}	D ^{VII}	G ^V
11th:	C ^{II}	F ^{VI}	B ^{bIII}	E ^{bVII}	A ^{bV}	D ^{bII}	G ^{bVI}	B ^{III}	E ^{VII}	A ^{IV}	D ^I	G ^V
12th:	C ^{III}	F ^{VII}	B ^{bIV}	E ^{bI}	A ^{bV}	D ^{bII}	G ^{bVI}	B ^{III}	E ^{VII}	A ^V	D ^{II}	G ^{VI}

24 Major Arpeggio (1_M3_m3_m5_P4)

The diagrams are arranged in three rows and four columns:

- Row 1: Positions I, II, III, IV
- Row 2: Positions V, VI, VII
- Row 3: Positions I, II, III, IV
- Row 4: Positions V, VI, VII

24.1 Practise

In the order:

C_{III_0} F_{VII_0} B^b_{V} E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VI_0}

Review #1 and Review #2:

1. root picture and arpeggio
2. arpeggio only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

25 Major 7 Arpeggio (1_M3_m3₅M3₇m₂)

25.1 Practise

In the order:

C_{III_0} F_{VII_0} B^b_V E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VI_0}

Review #1 and Review #2:

1. root picture and arpeggio
2. arpeggio only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

26 Minor Chord ($1_{m3}b3_{M3}5_{P4}$)

The diagrams are organized as follows:

- Row 1:** Voicings for chords I, II, III, and IV.
- Row 2:** Voicings for chords V, VI, and VII.
- Row 3:** Variations of chords I, II, III, and IV, with some notes in red and some strings muted.
- Row 4:** Variations of chords V, VI, and VII, with some notes in red and some strings muted.

26.1 Practise

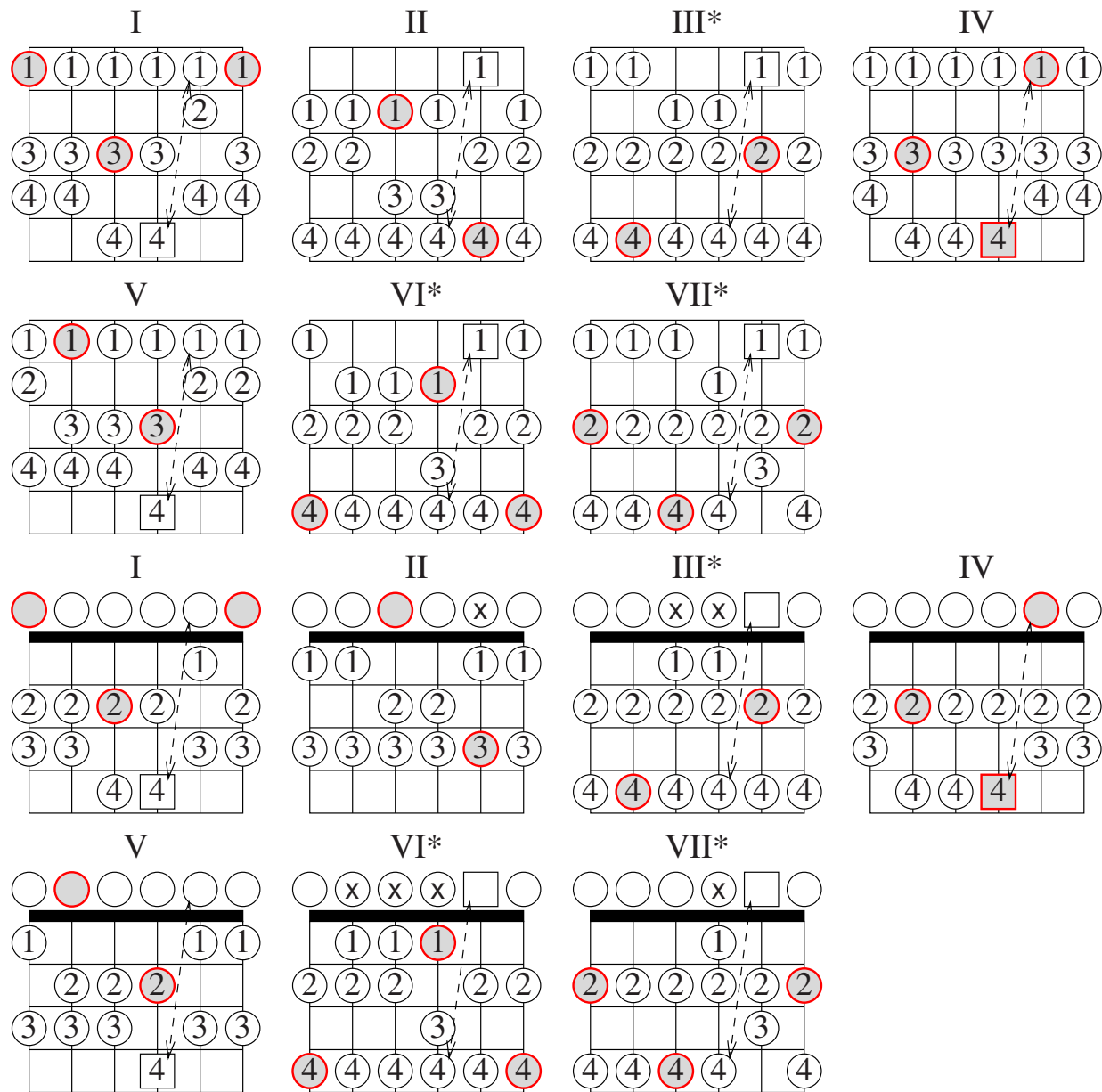
In the order:

C_{III_0} F_I B^b_V E^b_{II} A^b_{VI} D^b_{III} $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VI_0}

Review #1:

1. root picture and chord
2. chord only

27 Aeolian (Natural Minor) Scale (1_T2_S^b3_T4_T5_S^b6_T^b7_T)



27.1 Practise

In the order:

C_{IV} F_I B^b_V E^b_{II} $A^b_{VI_0}$ $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

28 Minor Arpeggio (1_{m3}^b3_{M3}5_{P4})

The diagrams illustrate the minor arpeggio (1_{m3}^b3_{M3}5_{P4}) in various positions across the fretboard. Each diagram shows a four-string fretboard with fingerings (1-4) and a dashed arrow indicating the arpeggio shape. Some diagrams have additional markings like '4/3' or '1/2' in boxes. The third row diagrams also feature a thick black bar across the top fret and some circles above the strings.

28.1 Practise

In the order:

C_{IV} F_I B^b_V E^b_{II} A^b_{VI} D^b_{III₀} G^b_{VII₀} B_{IV₀} E_{I₀} A_{V₀} D_{II₀} G_{VI₀}

Review #1:

1. root picture and arpeggio
2. arpeggio only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

29 Diminished Arpeggio ($1_{m3}b3_{m3}b5_{x4}$)

The diagrams illustrate the diminished arpeggio ($1_{m3}b3_{m3}b5_{x4}$) in various positions on the guitar fretboard. Each diagram shows a 4x4 grid representing frets and strings. Fingerings are indicated by circled numbers 1-4. Some diagrams include interval labels like 1/2, 4/3, and 2/1. Dashed arrows indicate the sequence of notes in the arpeggio.

Row 1:

- I:** Root on 1st fret, 1st string. Notes: 1 (1st string, 1st fret), 1/2 (2nd string, 1st fret), 1/2 (3rd string, 1st fret), 3 (4th string, 2nd fret), 4 (1st string, 4th fret), 4 (2nd string, 4th fret), 4 (3rd string, 4th fret).
- II:** Root on 2nd fret, 1st string. Notes: 1 (1st string, 2nd fret), 2 (2nd string, 2nd fret), 3 (3rd string, 2nd fret), 4 (1st string, 4th fret), 4 (2nd string, 4th fret).
- III:** Root on 3rd fret, 1st string. Notes: 1 (1st string, 3rd fret), 2 (2nd string, 3rd fret), 3 (3rd string, 3rd fret), 4 (1st string, 5th fret), 4 (2nd string, 5th fret).
- IV:** Root on 4th fret, 1st string. Notes: 1 (1st string, 4th fret), 2 (2nd string, 4th fret), 3 (3rd string, 4th fret), 4/3 (4th string, 5th fret), 4/3 (1st string, 7th fret), 2/1 (2nd string, 7th fret).

Row 2:

- V:** Root on 5th fret, 1st string. Notes: 1 (1st string, 5th fret), 2 (2nd string, 5th fret), 3 (3rd string, 5th fret), 4 (1st string, 7th fret).
- VI:** Root on 6th fret, 1st string. Notes: 1 (1st string, 6th fret), 2 (2nd string, 6th fret), 3 (3rd string, 6th fret), 4 (1st string, 8th fret), 4 (2nd string, 8th fret).
- VII:** Root on 7th fret, 1st string. Notes: 1 (1st string, 7th fret), 2 (2nd string, 7th fret), 3 (3rd string, 7th fret), 4 (1st string, 9th fret), 4 (2nd string, 9th fret).

Row 3 (Root notes highlighted in grey):

- I:** Root on 1st fret, 1st string.
- II:** Root on 2nd fret, 1st string.
- III:** Root on 3rd fret, 1st string.
- IV:** Root on 4th fret, 1st string.
- V:** Root on 5th fret, 1st string.
- VI:** Root on 6th fret, 1st string.
- VII:** Root on 7th fret, 1st string.

29.1 Practise

In the order:

C_{IV} F_I $B^b_{V_0}$ $E^b_{II_0}$ $A^b_{VI_0}$ $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{VI} D_{III} G_{VII}

Review #1:

1. root picture and arpeggio
2. arpeggio only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

30 1st Arpeggio Review

Form I	Major	Minor	Diminished
Form II			
Form III			
Form IV			
Form V			
Form VI			
Form VII			

30.1 Practise

For each form, play the major, minor and diminished arpeggio.

31 2nd Arpeggio Review

Form I	I	ii	iii	IV	V	vi	vii°
Form II	I	ii	iii	IV	V	vi	vii°
Form III	I	ii	iii	IV	V	vi	vii°
Form IV	I	ii	iii	IV	V	vi	vii°
Form V	I	ii	iii	IV	V	vi	vii°
Form VI	I	ii	iii	IV	V	vi	vii°
Form VII	I	ii	iii	IV	V	vi	vii°

31.1 Practise

1. For each form, play the scale and using each note of the scale as a root, play the appropriate arpeggio up, then down, and back to the starting note.
2. For each form, play the scale and then the appropriates in the order:

I IV vii° III vi ii V

32 Closed Major Triads

<p>Form I</p>	1st	2nd	Root	1st
<p>Form II</p>	1st	1st	2nd	
<p>Form III</p>	2nd	Root	1st	2nd
<p>Form IV</p>	2nd	2nd	Root	
<p>Form V</p>	1st	2nd	Root	
<p>Form VI</p>	Root	1st	2nd	1st
<p>Form VII</p>	2nd	Root	1st	

32.1 Practise

For each form, play the arpeggio and repeat its triads.

33 Open Major Triads

<p>Form I</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>
<p>Form II</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	
<p>Form III</p>	<p>2nd</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>
<p>Form IV</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>	
<p>Form V</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>	
<p>Form VI</p>	<p>Root</p>	<p>2nd</p>	<p>1st</p>	
<p>Form VII</p>	<p>Root</p>	<p>2nd</p>	<p>1st</p>	

33.1 Practise

For each form, play the arpeggio and repeat its triads.

34 Closed Minor Triads

<p>Form I</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	<p>1st</p>
<p>Form II</p>	<p>1st</p>	<p>1st</p>	<p>2nd</p>	
<p>Form III</p>	<p>2nd</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>
<p>Form IV</p>	<p>2nd</p>	<p>2nd</p>	<p>Root</p>	
<p>Form V</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	
<p>Form VI</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>	<p>1st</p>
<p>Form VII</p>	<p>2nd</p>	<p>Root</p>	<p>1st</p>	

34.1 Practise

For each form, play the arpeggio and repeat its triads.

35 Open Minor Triads

<p>Form I</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>
<p>Form II</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	
<p>Form III</p>	<p>2nd</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>
<p>Form IV</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>	
<p>Form V</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>	
<p>Form VI</p>	<p>Root</p>	<p>2nd</p>	<p>1st</p>	
<p>Form VII</p>	<p>Root</p>	<p>2nd</p>	<p>1st</p>	

35.1 Practise

For each form, play the arpeggio and repeat its triads.

36 Closed Diminished Triads

<p>Form I</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	<p>1st</p>
<p>Form II</p>	<p>1st</p>	<p>1st</p>	<p>2nd</p>	
<p>Form III</p>	<p>2nd</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>
<p>Form IV</p>	<p>2nd</p>	<p>2nd</p>	<p>Root</p>	
<p>Form V</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	
<p>Form VI</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>	<p>1st</p>
<p>Form VII</p>	<p>2nd</p>	<p>Root</p>	<p>1st</p>	

36.1 Practise

For each form, play the arpeggio and repeat its triads.

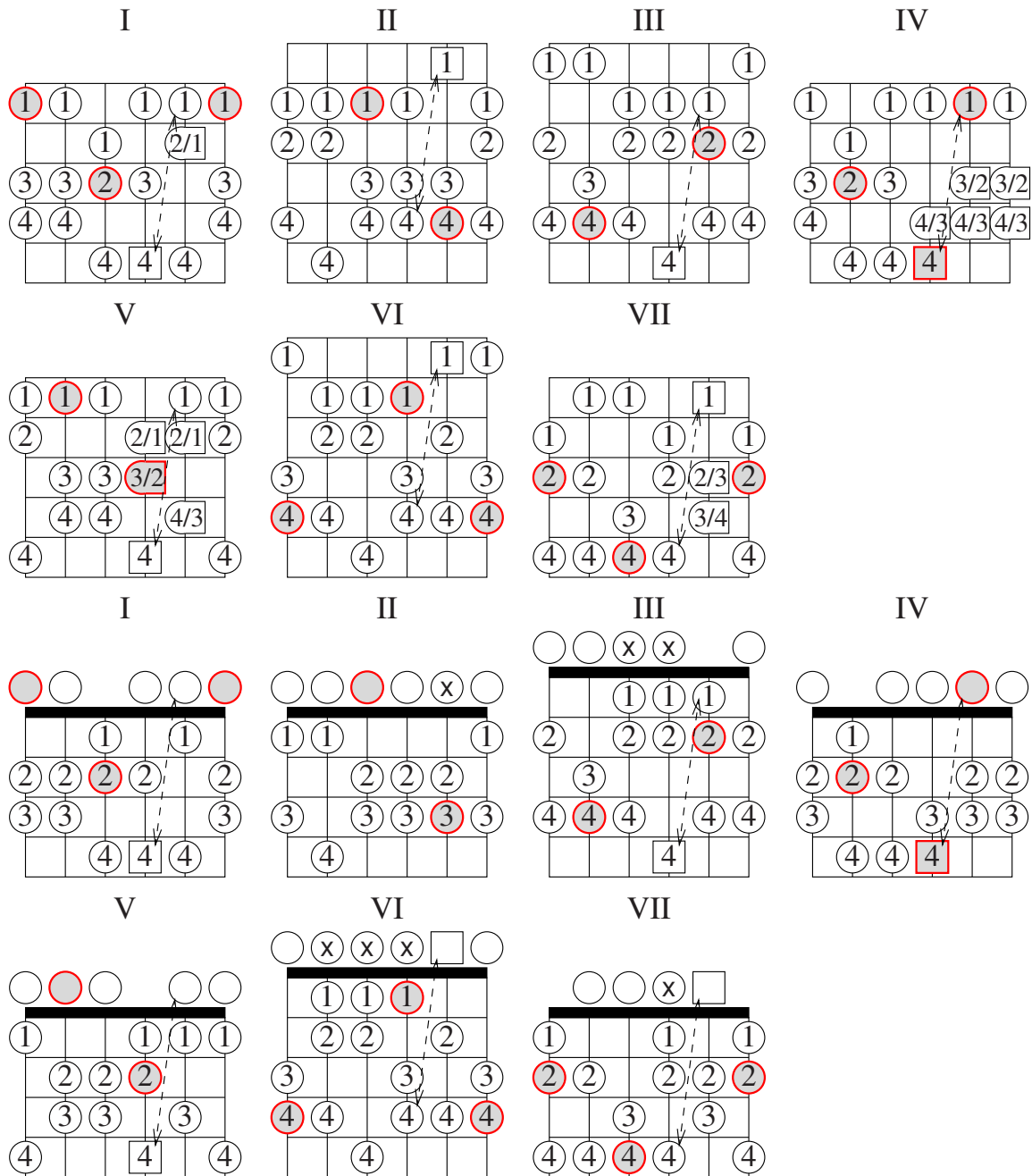
37 Open Diminished Triads

<p>Form I</p>	<p>Root</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>
<p>Form II</p>	<p>1st</p>	<p>2nd</p>	<p>Root</p>	
<p>Form III</p>	<p>2nd</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>
<p>Form IV</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>	
<p>Form V</p>	<p>1st</p>	<p>Root</p>	<p>2nd</p>	
<p>Form VI</p>	<p>Root</p>	<p>2nd</p>	<p>1st</p>	
<p>Form VII</p>	<p>Root</p>	<p>2nd</p>	<p>1st</p>	

37.1 Practise

For each form, play the arpeggio and repeat its triads.

38 Harmonic Minor Scale (1_T2_S^b3_T4_T5_S^b6_T¹7_S)



38.1 Practise

In the order:

C_{IV} F_I B^b_V E^b_{II} A^b_{VI₀} D^b_{III₀} G^b_{VII₀} B_{IV₀} E_{I₀} A_{V₀} D_{II₀} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

39 Melodic Minor Scale (1_T2_S^b3_T4_T5_T6_T7_S)

The diagrams illustrate the melodic minor scale in various positions (I-IV) across the fretboard. Each diagram shows the six strings and frets, with fingerings (1-4) and accidentals (sharps, flats, naturals) indicated. Some notes are circled in red, and some are boxed. Arrows indicate the direction of the scale run. In the third row, some strings are marked with 'x' to indicate they are not played.

39.1 Practise

In the order:

C_{IV} F_I B^b_V E^b_{II} $A^b_{VI_0}$ $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

40 Augmented Arpeggio (1_{M3}3_{M3}#5_{°4})

40.1 Practise

In the order:

C_{III0} F_{VII0} B^b_V E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV0} E_{I0} A_{V0} D_{II0} G_{VI0}

Review #1 and Review #2:

1. root picture and arpeggio
2. arpeggio only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

41 Harmonic Minor Arpeggio Review

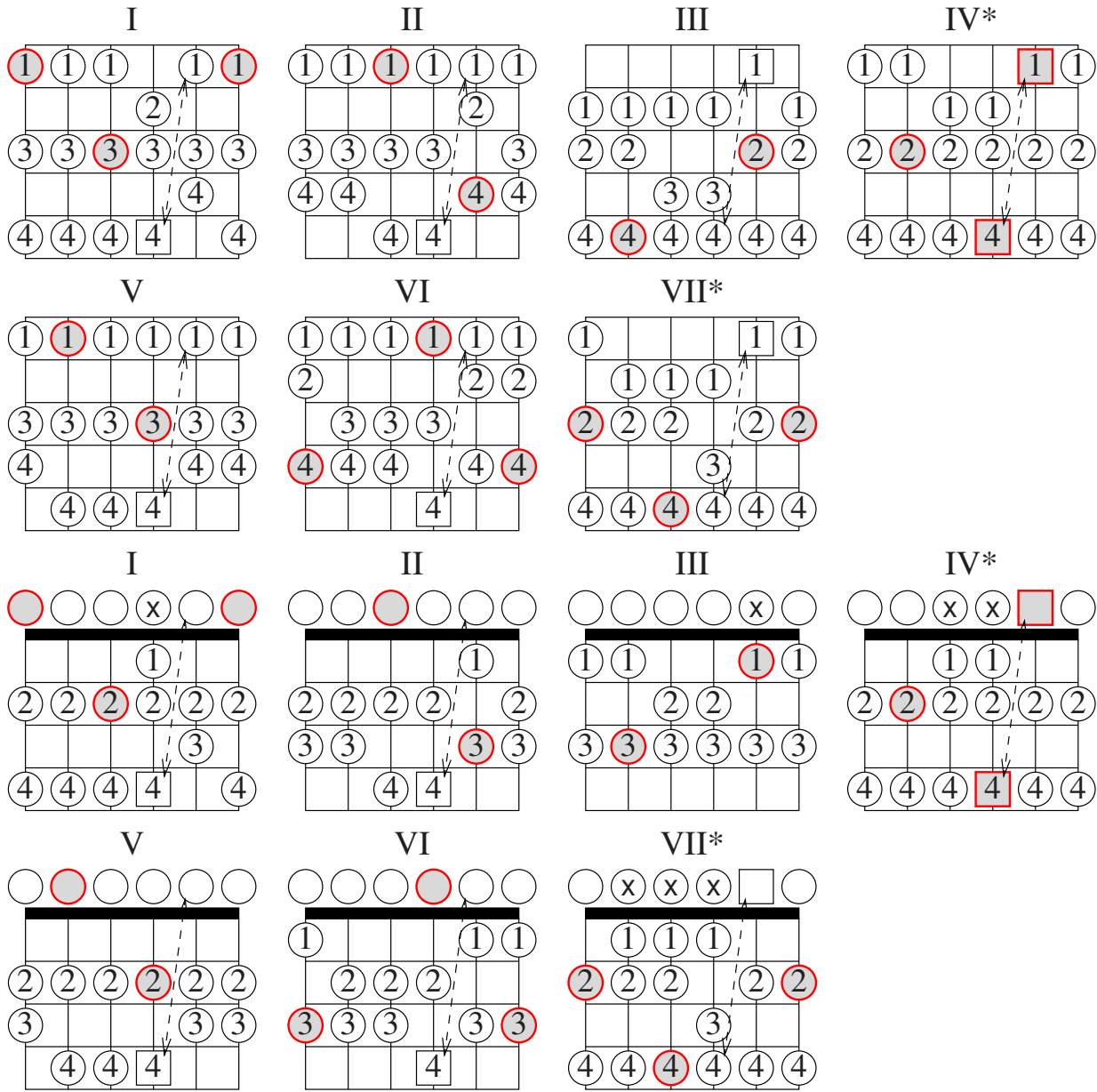
Form I	i	ii°	III⁺	iv	V	VI	vii°
Form II	i	ii°	III⁺	iv	V	VI	vii°
Form III	i	ii°	III⁺	iv	V	VI	vii°
Form IV	i	ii°	III⁺	iv	V	VI	vii°
Form V	i	ii°	III⁺	iv	V	VI	vii°
Form VI	i	ii°	III⁺	iv	V	VI	vii°
Form VII	i	ii°	III⁺	iv	V	VI	vii°

41.1 Practise

- For each form, play the scale and using each note of the scale as a root, play the appropriate arpeggio up, then down, and back to the starting note.
- For each form, play the scale and then the appropriates in the order:

i ii° III⁺ iv V VI vii°

42 Mixolydian Scale (1_T2_T3_S4_T5_T6_S7_T)



42.1 Practise

In the order:

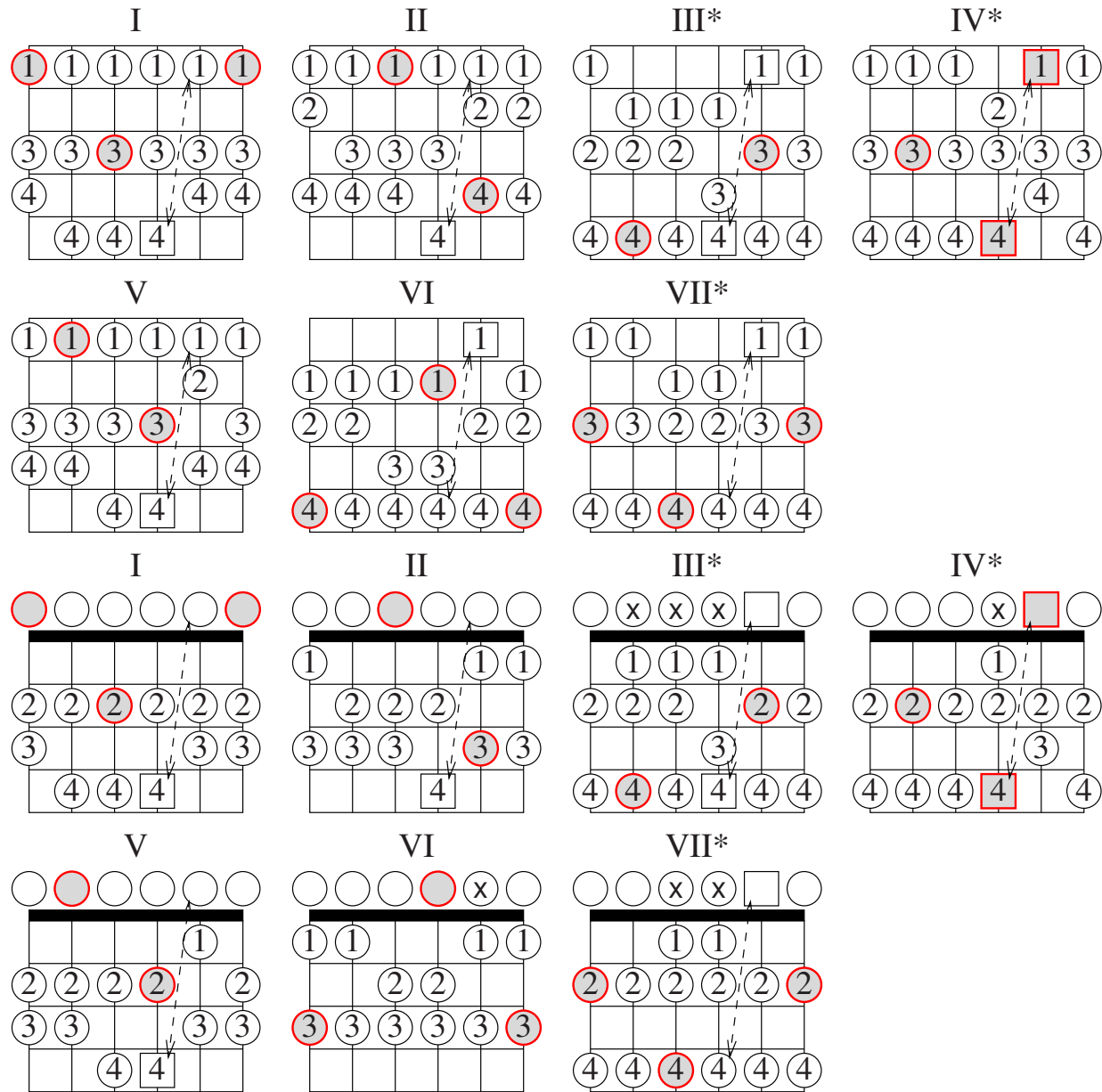
C_{III_0} F_I B^b_V E^b_{II} A^b_{VI} D^b_{III} $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VI_0}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

43 Dorian Scale (1_T2_S^b3_T4_T5_T6_S^b7_T)



43.1 Practise

In the order:

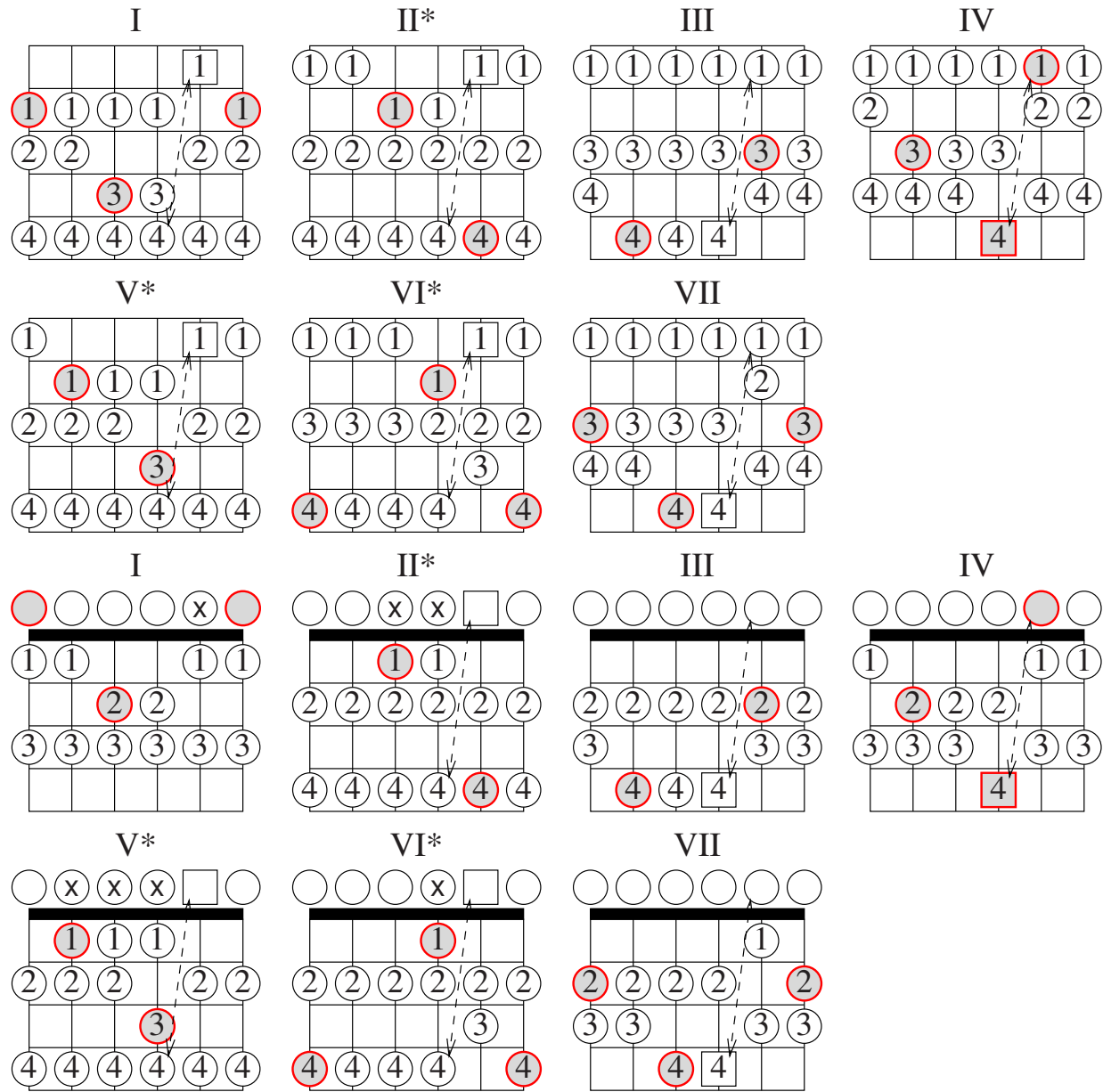
C_{IV} F_I B^b_V E^b_{II} A^b_{VI} $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{III} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

44 Locrian Scale (1_S^b2_T^b3_T4_S^b5_T^b6_T^b7_T)



44.1 Practise

In the order:

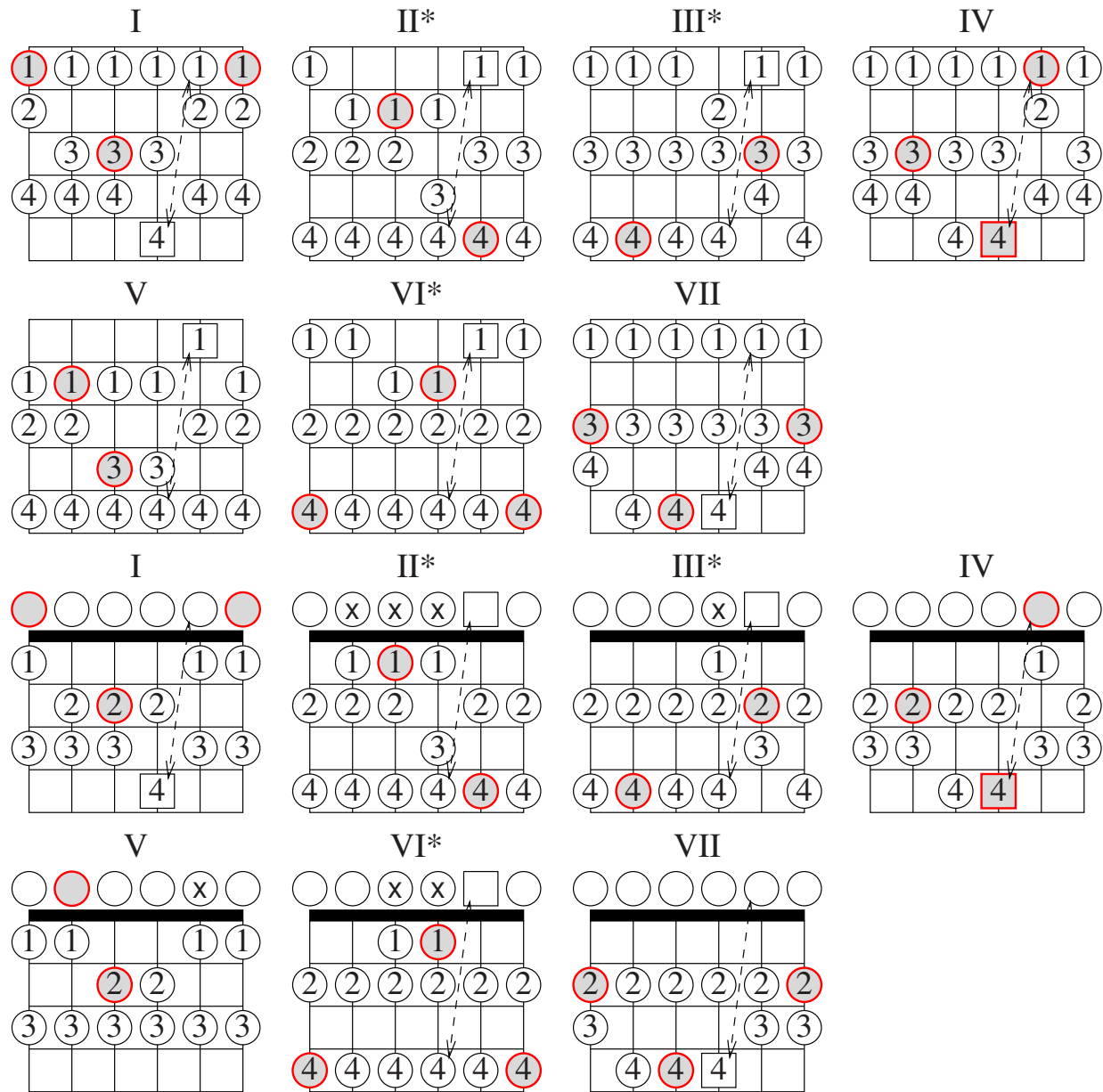
C_{IV} F_I B^b_{V₀} E^b_{II₀} A^b_{VI₀} D^b_{III₀} G^b_{VII₀} B_V E_{II} A_{VI} D_{III} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

45 Phrygian Scale (1_S^b2_T^b3_T4_T5_S^b6_T^b7_T)



45.1 Practise

In the order:

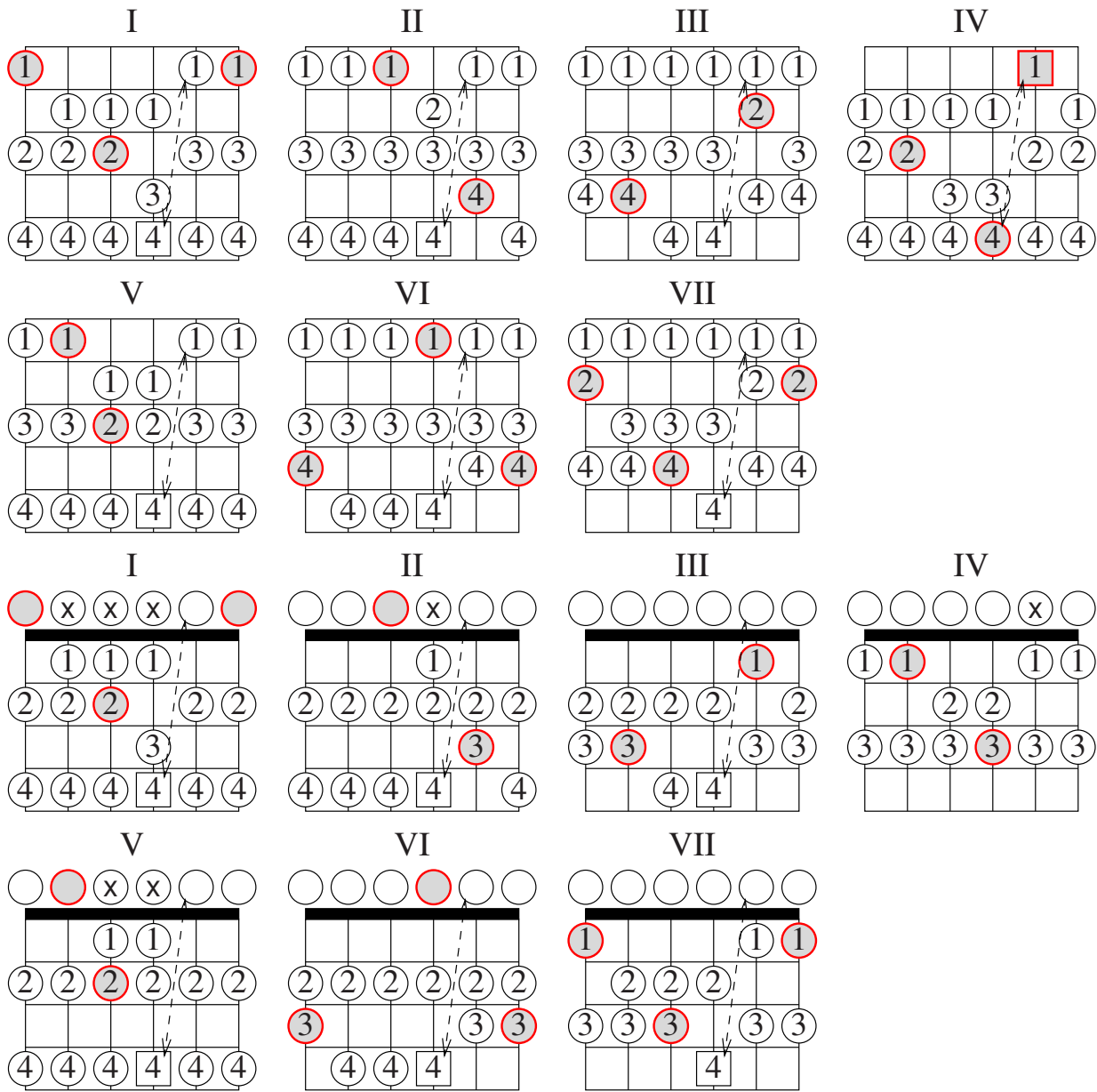
C_{IV} F_I B^b_V $E^b_{II_0}$ $A^b_{VI_0}$ $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{II} A_{VI} D_{III} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

46 Lydian Scale ($b1_T b2_T b3_T 4_S b5_T b6_T b7_S$)



46.1 Practise

In the order:

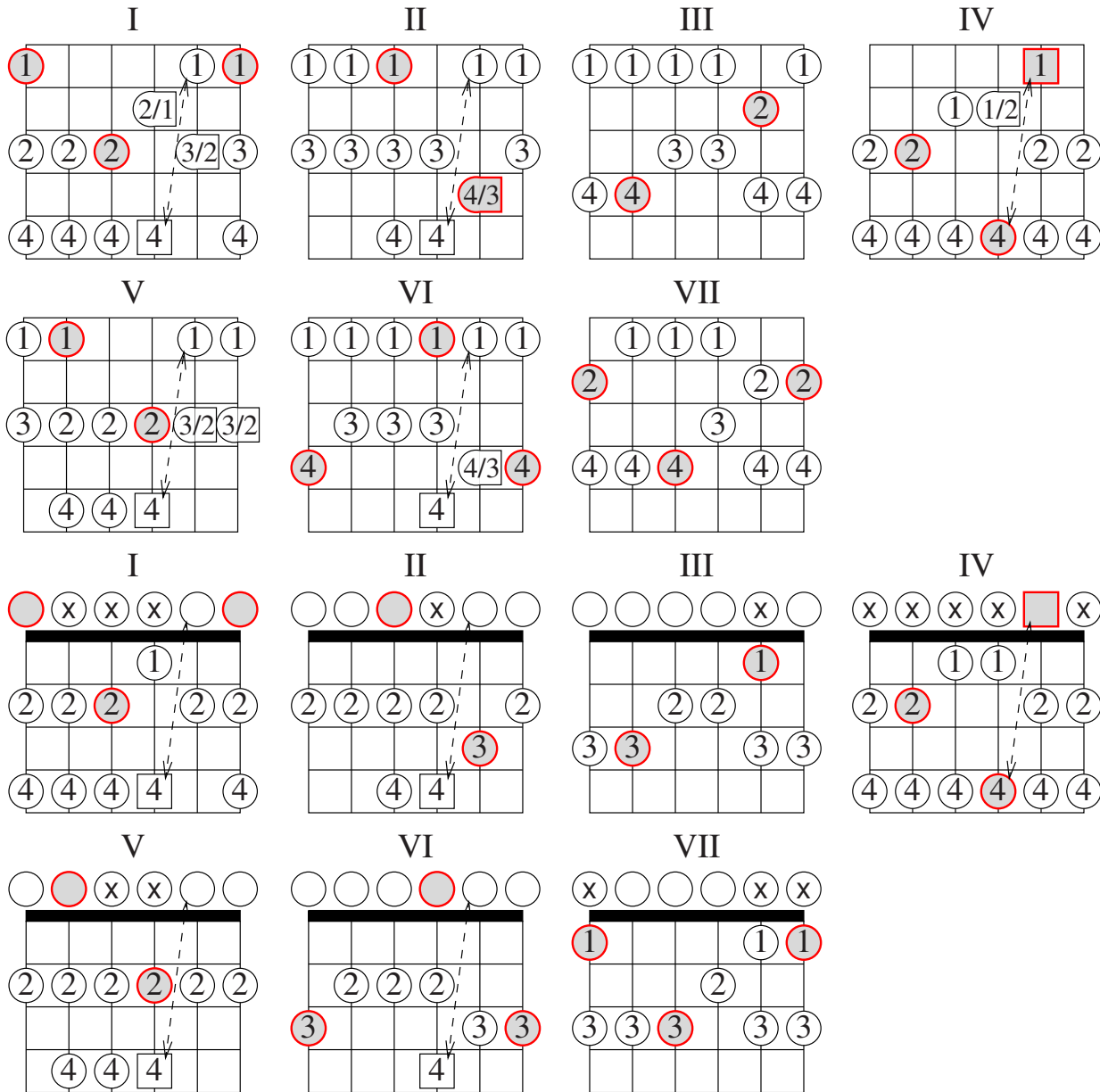
C_{III_0} F_{VII_0} $B^b_{IV_0}$ E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV} E_{I_0} A_{V_0} D_{II_0} G_{VI_0}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

47 Major Pentatonic Scale (1_T2_T3_{T¹}5_T6_{T¹})



47.1 Practise

In the order:

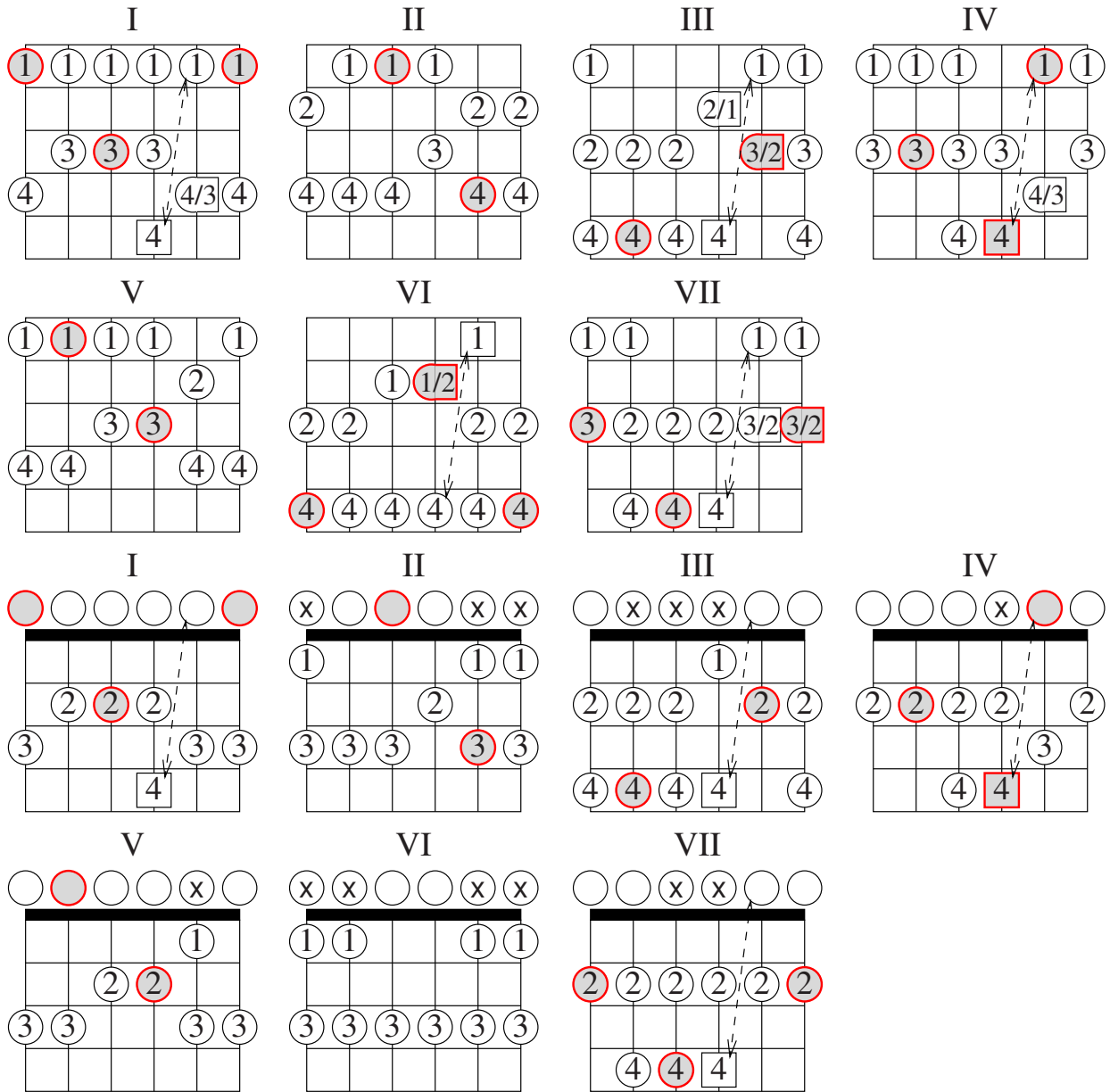
C_{III₀} F_{VII₀} B^b_V E^b_{II} A^b_{VI} D^b_{III} G^b_{VII} B_{IV₀} E_{I₀} A_{V₀} D_{II₀} G_{VI₀}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

48 Minor Pentatonic Scale ($1_{T\frac{1}{2}} \flat 3_{T\frac{1}{2}} 4_T 5_{T\frac{1}{2}} \flat 7_T$)



48.1 Practise

In the order:

C_{IV} F_I B^b_{V} E^b_{II} $A^b_{VI_0}$ $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

49 Major Blues Scale (1_T2_S^b3_S3_T¹5_T6_T¹)

The diagrams are arranged in four systems, each with four positions (I-IV) and a fifth position (V) in the first system.

- System 1:** Positions I, II, III, IV, and V. Fingerings include 1, 2, 3, 4 on strings 1-4. Intervals shown: 2/1, 3/2, 4/3.
- System 2:** Positions I, II, III, IV, and V. Fingerings include 1, 2, 3, 4 on strings 1-4. Intervals shown: 2/1, 3/2, 4/3.
- System 3:** Positions I, II, III, IV, and V. Fingerings include 1, 2, 3, 4 on strings 1-4. Intervals shown: 2/1, 3/2, 4/3.
- System 4:** Positions I, II, III, IV, and V. Fingerings include 1, 2, 3, 4 on strings 1-4. Intervals shown: 2/1, 3/2, 4/3.

49.1 Practise

In the order:

C_{IV} F_I B^b_V E^b_{II} $A^b_{VI_0}$ $D^b_{III_0}$ $G^b_{VII_0}$ B_{IV_0} E_{I_0} A_{V_0} D_{II_0} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

50 Minor Blues Scale (1_{T_{1/2}} b3_T 4_S b5_S 5_{T_{1/2}} b7_T)

The diagrams are organized as follows:

- Top Row:** Positions I, II, III, and IV.
- Middle Row:** Positions V, VI, and VII.
- Bottom Section:** Root positions I, II, III, IV, V, VI, and VII, each with a thick black bar across the top strings and 'x' marks for muted strings.

50.1 Practise

In the order:

C_{IV} F_I B^b_{V₀} E^b_{II₀} A^b_{VI₀} D^b_{III₀} G^b_{VII₀} B_{IV₀} E_{I₀} A_V D_{II} G_{VII}

Review #1:

1. root picture and scale
2. scale only

When going up fretboard, start at lowest note; when going down fretboard, start at highest note.

51 Major (Ionian) Scale Intervals (1_T2_T3_S4_T5_T6_T7_S)

<p>Form I</p>	<p>7 M3 M6 M2 7</p> <p>Ⓡ P4 m3 P5 Ⓡ</p> <p>m2 7 M3 m6 m2</p> <p>M2 P5 Ⓡ P4 M6 M2</p> <p>m3 m6 m2 m3</p> <p>M3 M6 M2 P5 7 M3</p> <p>P4 m3 m6 Ⓡ P4</p>	<p>Form V</p>	<p>7 M3 M6 m2</p> <p>P5 Ⓡ P4 M2 P5</p> <p>m6 m2 7 m3 m6</p> <p>M6 M2 P5 Ⓡ M3 M6</p> <p>m3 m6 P4</p> <p>7 M3 M6 M2 7</p> <p>Ⓡ P4 m3 P5 Ⓡ</p>
<p>Form II</p>	<p>m2 7 M3 m6 m2</p> <p>M2 P5 Ⓡ P4 M6 M2</p> <p>m3 m6 m2 m3</p> <p>M3 M6 M2 P5 7 M3</p> <p>P4 m3 m6 Ⓡ P4</p> <p>7 M3 M6 m2</p> <p>P5 Ⓡ P4 M2 P5</p>	<p>Form VI</p>	<p>m6 m2 7 m3 m6</p> <p>M6 M2 P5 Ⓡ M3 M6</p> <p>m3 m6 m2 P4</p> <p>7 M3 M6 M2 7</p> <p>Ⓡ P4 m3 P5 Ⓡ</p> <p>m2 7 M3 m6 m2</p> <p>M2 m6 Ⓡ P4 M6 M2</p>
<p>Form III</p>	<p>m3 m6 m2 m3</p> <p>M3 M6 M2 P5 7 M3</p> <p>P4 m3 m6 Ⓡ P4</p> <p>7 M3 M6 m2</p> <p>P5 Ⓡ P4 M2 P5</p> <p>m6 m2 7 m3 m6</p> <p>M6 M2 P5 Ⓡ M3 M6</p>	<p>Form VII</p>	<p>m3 m6 m2 P4</p> <p>7 M3 M6 M2 7</p> <p>Ⓡ P4 m3 P5 Ⓡ</p> <p>m2 7 M3 m6 m2</p> <p>M2 P5 Ⓡ P4 M6 M2</p> <p>m3 m6 m2 7 m3</p>
<p>Form IV</p>	<p>M3 M6 M2 P5 7 M3</p> <p>P4 m3 m6 Ⓡ P4</p> <p>7 M3 M6 m2</p> <p>P5 Ⓡ P4 M2 P5</p> <p>m6 m2 7 m3 m6</p> <p>M6 M2 P5 Ⓡ M3 M6</p> <p>m3 m6 m2 P4</p>		

52 Practise

52.1 Daily Practise

Minimum of 30 minutes per day; average 1 to 1½ hours per day.

- Basics (30 minutes):
 1. Note Review, one of:
 - (a) 1st: 6 String Note Review (3–5 minutes)
 - (b) 2nd: 6 String Note Review (3–5 minutes)
 - (c) 3rd: 6 String Note Review (3–5 minutes)
 2. review 1-3 for any chord/arpeggio/scale set other than current one being learned both normal and open forms (5-10 minutes)
Rotate through the scales so that all scales are practised.
 3. review 1 for current chord/arpeggio/scale being learned (5-15 minutes)
- New Material (30 minutes)
practise new material to learn new skills
- Old Material (30 minutes)
practise one or more existing pieces to reinforce skills

After note review, begin each practise **very slowly** and gradually increase speed.

52.2 Metronome

- Use a metronome as soon as possible after learning a new exercise or piece.
- Otherwise, always use a metronome during part of every exercise.

52.3 Chromatic Octaves

1.

Exercise 1 consists of two staves of music. The first staff contains two measures of chromatic octaves. The first measure has a treble clef and a key signature of one sharp (F#). The notes are: G2 (fing. 2), A2 (fing. 3), B2 (fing. 4), C3 (fing. 0), D3 (fing. 1), E3 (fing. 2), F#3 (fing. 3), G3 (fing. 4), A3 (fing. 1), B3 (fing. 2), C4 (fing. 3), D4 (fing. 4), E4 (fing. 0), F#4 (fing. 1), G4 (fing. 2), A4 (fing. 3), B4 (fing. 4). The second measure has a bass clef and a key signature of one sharp (F#). The notes are: G4 (fing. 0), A4 (fing. 1), B4 (fing. 2), C5 (fing. 3), D5 (fing. 4), E5 (fing. 0), F#5 (fing. 1), G5 (fing. 2), A5 (fing. 3), B5 (fing. 4). The second staff contains two measures of chromatic octaves. The first measure has a treble clef and a key signature of one sharp (F#). The notes are: G3 (fing. 3), A3 (fing. 2), B3 (fing. 1), C4 (fing. 0), D4 (fing. 4), E4 (fing. 3), F#4 (fing. 2), G4 (fing. 1), A4 (fing. 4), B4 (fing. 3), C5 (fing. 2), D5 (fing. 1), E5 (fing. 4), F#5 (fing. 3), G5 (fing. 2), A5 (fing. 1), B5 (fing. 4). The second measure has a bass clef and a key signature of one sharp (F#). The notes are: G4 (fing. 0), A4 (fing. 4), B4 (fing. 3), C5 (fing. 2), D5 (fing. 1), E5 (fing. 4), F#5 (fing. 3), G5 (fing. 2), A5 (fing. 1), B5 (fing. 4), C6 (fing. 0), D6 (fing. 4), E6 (fing. 3), F#6 (fing. 2), G6 (fing. 1), A6 (fing. 4), B6 (fing. 3).

2. Same fingering as 1. * sustain

Exercise 2 consists of two staves of music. The first staff has a treble clef and a key signature of one sharp (F#). It contains two measures of chromatic octaves. The first measure starts with a sustain mark (*) under the G2 note. The notes are: G2, A2, B2, C3, D3, E3, F#3, G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4. The second measure has a bass clef and a key signature of one sharp (F#). The notes are: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6. The second staff has a treble clef and a key signature of one sharp (F#). It contains two measures of chromatic octaves. The first measure has a sustain mark (*) under the G3 note. The notes are: G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5. The second measure has a bass clef and a key signature of one sharp (F#). The notes are: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6.

3. Same fingering as 1. * sustain

Exercise 3 consists of two staves of music. The first staff has a treble clef and a key signature of one sharp (F#). It contains two measures of chromatic octaves. The first measure starts with a sustain mark (*) under the G2 note. The notes are: G2, A2, B2, C3, D3, E3, F#3, G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4. The second measure has a bass clef and a key signature of one sharp (F#). The notes are: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6. The second staff has a treble clef and a key signature of one sharp (F#). It contains two measures of chromatic octaves. The first measure has a sustain mark (*) under the G3 note. The notes are: G3, A3, B3, C4, D4, E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5. The second measure has a bass clef and a key signature of one sharp (F#). The notes are: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6.

52.4 Diatonic (Segovia) Major Scales: 2 Octaves

1. C, C \sharp /D \flat , D, D \sharp /E \flat (Form VI)

2. E

3. F

4. F \sharp /G \flat , G, G \sharp /A \flat , A, A \sharp /B \flat , B

finger combinations:

- i m, m i, a m, i a, a i
- i m a m, a m i m, m a m i, m i m a
- i m a, m a i, a i m
- a m i, m i a, i a m

52.5 Diatonic (Segovia) Major Scales: 3 Octaves

1. E

Two staves of music for the E major scale (three octaves). The first staff shows the ascending scale with red fingering numbers (0, 1, 3, 4, -2, 4, 1, 2, 4, 1, 2, 4, 1, 3, -1, 3, 1, 2, 4, 1, 3, 4, 3, 1, -4, 2, 1) and blue circled numbers (1-6) indicating fret positions. The second staff shows the descending scale with red fingering numbers (4, 2, 1, 3, 1, 4, 3, 1, 4, 3, 1, 4, -4, 3, 1, 0) and blue circled numbers (2-6). Chord diagrams for I, IV, V, and I are shown at the end of the second staff.

2. F

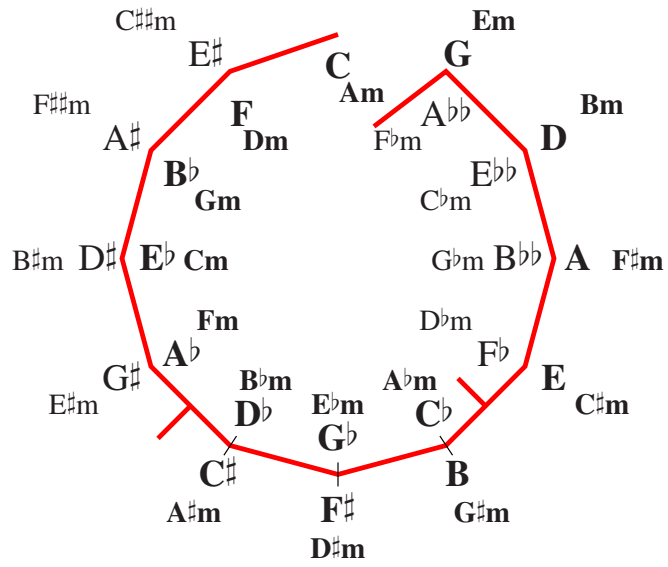
Two staves of music for the F major scale (three octaves). The first staff shows the ascending scale with red fingering numbers (1, 3, 0, 1, 3, -1, 3, 4, 1, 3, 4, 1, 2, 4, 1, 2, 4, -1, 3, 4, 3, 1, -4, 2, 1) and blue circled numbers (1-6). The second staff shows the descending scale with red fingering numbers (4, 2, 1, 3, 1, 4, 3, 1, 4, 3, 1, -3, 1, 0, 3, 1) and blue circled numbers (2-6). Chord diagrams for I, IV, V, and I are shown at the end of the second staff.

3. F#/G^b, G, G#/A^b, A, A#/B^b, B

Two staves of music for the F#/G^b, G, G#/A^b, A, A#/B^b, B major scale (three octaves). The first staff shows the ascending scale with red fingering numbers (2, 4, 1, 2, 4, 1, 3, 4, 1, 3, 4, 1, 2, 4, 1, 3, -1, 3, 4, 3, 1, -4, 2, 1) and blue circled numbers (1-6). The second staff shows the descending scale with red fingering numbers (4, 2, 1, 3, 1, 4, 3, 1, 4, 3, 1, -4, 2, 1, 4, 2) and blue circled numbers (2-6). Chord diagrams for I, IV, V, and I are shown at the end of the second staff.

52.6 Hammer-On/Pull-Off

53 Key Signatures



- given a relative major, rotate 3 positions clockwise for its relative minor scale
- given a relative minor, rotate 3 positions counter-clockwise for its relative major scale

A Glossary

Accidental: affects the pitch of a note (higher or lower) on a staff line or space for the remainder of the measure

Action: the distance of the strings above the frets

Aeolian Scale: scale denoted by series: 1_T2_S^b3_T4_T5_S^b6_T^b7_T

Amplitude: size of a sound wave; large amplitude produces a loud sound, small amplitude produces a quiet sound

Arpeggio: notes of a chord played in rapid succession instead of simultaneously

Augmented Interval: perfect or major interval enlarged by a semitone, denoted by prefix “x”

Augmented Triad: chord with a major third and an augmented fifth

Authentic Cadence: see perfect cadence

Bar: vertical divisions of a staff (usually) separating the notes in a measure

Blues Scale: see major and minor blues scale

Cadence: a 2 chord sequence marking the end of every phrase of classical music, providing a type of harmonic punctuation

Chord: (usually) 3 or more notes played simultaneously to produce a harmonic sound

Chromatic: (Greek, *χρωμα*, meaning “colour”) consisting of twelve notes, including accidentals, in an octave

Church Cadence: see plagal cadence

Close Position: chord formed from notes within an octave

Compound Interval: interval larger than an octave

Degree: position of notes in a scale, numbered with Roman numerals from low pitch to high, e.g., degrees of a diatonic scale are I,II,III,IV,V,VI,VII

Diatonic: (Greek, *δια*, meaning “at the interval of” and, *τονος*, meaning “tone”) consisting of eight notes in a octave

Diminished Interval: perfect or minor interval reduced by a semitone, denoted by prefix “o”

Diminished Triad: chord with a minor third and a diminished fifth

Dominant: the note in a scale five degrees above the tonic (5th degree)

Dorian Scale: scale denoted by series: 1_T2_S^b3_T4_T5_T6_S^b7_T

Double Sharp (): accidental raise a note two semi-tones, e.g., two frets

Double Flat ($\flat\flat$): accidental lower a note two semi-tones, e.g., two frets

Duration: the length of sound or silence

Enharmonic: different name for the same note, e.g., $G^{\flat} \equiv F^{\sharp}$

Final Cadence: cadence found at the end of a sentence or at the end of a piece of music (see perfect and plagal cadence) (see non-final cadence)

Flat (\flat): accidental lowering the pitch of a note one semi-tone, e.g., one fret

Form:

Four-note Form: chord containing a duplicate note in a different octave

Free-Stroke: stroking across a string, gliding above the next lower string (see rest-stroke)

Fundamental: the lowest pitch of a sound wave for a note

Guide Finger: does not entirely leave the string when moving to a new note

Harmonic: see partial

Harmonic Interval: interval for notes played at the same time

Hertz: cycles per second, e.g., $A = 440Hz$

Imperfect Cadence: a non-final cadence composed of a tonic or subdominant chord followed by a dominant chord ($I \rightarrow V$ or $IV \rightarrow V$)

Intensity: amount of energy in a sound wave (amplitude of the sound wave)

Interval: distance in pitch between two notes in semitones (size + quality = semitones)

Interval Size: the number of diatonic letter-names between notes

Interval Quality: qualification of the interval size and/or number semitones between notes, e.g., major (+), minor (-), perfect (P), diminished (\circ), augmented (x)

Inverted Interval: reversing the upper and lower notes of an interval

Ionian Scale: see Major Scale

Key Signature: group of accidentals placed after the clef sign showing which notes have their pitch modified in all measures unless explicitly overridden by accidental within a measure

Leading-note: the note in a scale a semitone below the tonic (7th degree) (see lowered 7th degree)

Locrian Scale: scale denoted by series: $1_S^{\flat} 2_T^{\flat} 3_T 4_S^{\flat} 5_T^{\flat} 6_T^{\flat} 7_T$

Lowered 7th Degree: the note in a scale below the tonic that is not the leading-note (see leading-note)

Lydian Scale: scale denoted by series: $^{\flat} 1_T^{\flat} 2_T^{\flat} 3_T 4_S^{\flat} 5_T^{\flat} 6_T^{\flat} 7_S$

Major Blues Scale: scale denoted by series: $1_T 2_S \flat 3_S 3_{T\frac{1}{2}} 5_T 6_{T\frac{1}{2}}$

Major Interval: name of the 2nd, 3rd, 6th and 7th in the interval size, denoted by prefix “+”

Major Pentatonic Scale: scale denoted by series: $1_T 2_T 3_{T\frac{1}{2}} 5_T 6_{T\frac{1}{2}}$

Major Scale: scale denoted by series: $1_T 2_T 3_S 4_T 5_T 6_T 7_S$

Major Triad: chord with a major third and a perfect fifth

Measure: group of notes between bars controlled by the key signature

Mediant: the note in a scale between the tonic and dominant (3rd degree)

Melodic:

Melodic Interval: interval for notes played one after the other

Minor Blues Scale: scale denoted by series: $1_{T\frac{1}{2}} \flat 3_T 4_S \flat 5_S 5_{T\frac{1}{2}} \flat 7_T$

Minor Interval: major interval reduced by a semitone, denoted by prefix “-”

Minor Pentatonic Scale: scale denoted by series: $1_{T\frac{1}{2}} \flat 3_T 4_T 5_{T\frac{1}{2}} \flat 7_T$

Minor Triad: chord with a minor third and a perfect fifth

Mixolydian Scale: scale denoted by series: $1_T 2_T 3_S 4_T 5_T 6_S \flat 7_T$

Natural (♮): accidental indicating the normal pitch of a note (usually used to cancel a # or ♭ in a key signature or previous accidental in a measure)

Natural Minor Scale: see Aeolian

Non-final Cadence: cadence found in the middle of a sentence (see imperfect cadence) (see final cadence)

Note: symbol representing a musical sound

Nth Position: spans fret positions $N - 1$ to $N + 4$, e.g., 1st position spans frets 0 to 5 and 8th position spans frets 7 to 12.

Partials:

Pentatonic Scale: see major and minor pentatonic scale

Perfect Cadence: a final cadence composed of a dominant chord followed by a tonic chord (V→I)

Perfect Interval: name of the unison, 4th, 5th and octave in the interval size, denoted by prefix “P”

Phrygian Scale: scale denoted by series: $1_S \flat 2_T \flat 3_T 4_T 5_S \flat 6_T \flat 7_T$

Pivot Finger: remains stationary while other fingers are moved (pivoted around) it to form new notes

Plagal Cadence: a final cadence composed of a subdominant chord followed by a tonic chord (IV→I)

Pitch: frequency of a sound wave, determining whether it has a high or low sound (measured in hertz)

Octave: distance from a named note to the same named note higher or lower in pitch

Open Position: chord formed from notes greater than an octave apart

Overtone: all partials *other* than the fundamental

Rest-Stroke: stroking across a string, coming to rest against the next lower string (see free-stroke)

Rhythm: measured flow of time in music

Root Picture: tonics in the scale of form N

Root: lowest note of an uninverted chord

Scale: series of consecutive notes from any note to its octave

Semi-tone: smallest distance between two notes in even-tempered music

Sharp (#): accidental raising the pitch of a note one semi-tone, e.g., one fret

Sound: wave form generated by a vibrating body

Staff: (usually) 5 lines with 4 spaces on which notes are written

Subdominant: the note in a scale four degrees above the tonic (one below the dominant) (4th degree)

Submediant: the note in a scale six degrees above the tonic (6th degree)

Supertonic: the note in a scale above the tonic (2nd degree)

Tetrachord: half of the scale (1st and last 4 consecutive notes), named lower and upper tetrachord

Timbre: the number, intensity, and distribution of the partials (harmonics) contained in a sound

Time Signature: fraction appearing at the start of a composition, where the numerator is the beats per measure and denominator is the kind of note receiving a beat

Tone: two consecutive semi-tones above or below a note, e.g., two consecutive frets above or below a given fret

Tonic: the first note in a scale (1st degree)

Triad: basic chord composed of three sounds built from thirds, e.g., 1,3,5

Unison: name for interval size of 1

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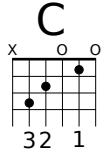
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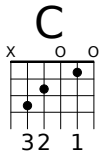
Row, Row, Row Your Boat



Musical staff 1 (measures 1-4):

Row, row, row your boat,

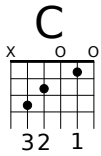
Chords: C, C, C, D, E



Musical staff 2 (measures 5-8):

Gent - ly down the stream.

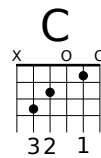
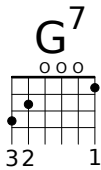
Chords: E, D, E, F, G, G



Musical staff 3 (measures 9-12):

Mer - ri - ly, mer - ri - ly, mer - ri - ly, mer - ri - ly,

Chords: C, C, C, G, G, G, E, E, E, C, C, C



Musical staff 4 (measures 13-16):

Life is but a dream.

Chords: G, F, E, D, C, C

Twinkle Twinkle Little Star

This musical score is for the song "Twinkle Twinkle Little Star" and is written for guitar. It consists of six staves of music, each with a treble clef and a common time signature (C). The lyrics are written below the notes. Above each staff, there are guitar chord diagrams for the chords used in that staff. The chords are: C (321), F (134211), C (321), F (134211), C (321), G7 (321), C (321), F (134211), C (321), G7 (321), C (321), F (134211), C (321), G7 (321), C (321), F (134211), C (321), G7 (321), C (321).

8
Twinkle - kle twin - kle lit - tle star,

3
how I won - der what you are!

5
Up a - bove the world so high,

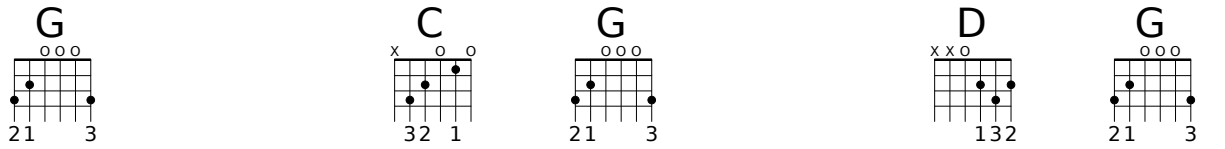
7
like a dia - mond in the sky.

9
Twinkle - kle twin - kle lit - tle star,

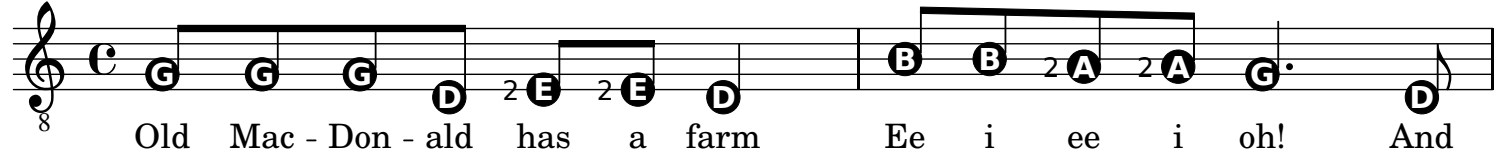
11
how I won - der what you are!

Old MacDonald

1

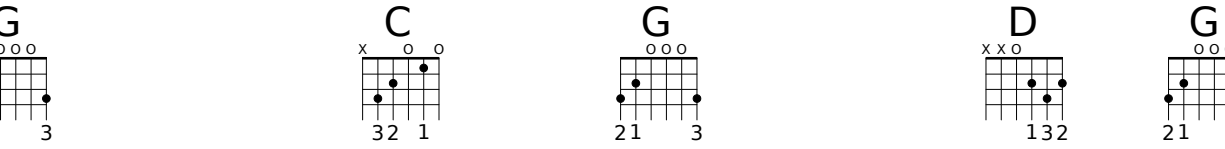


21 3 x 0 0 21 3 x x 0 21 3

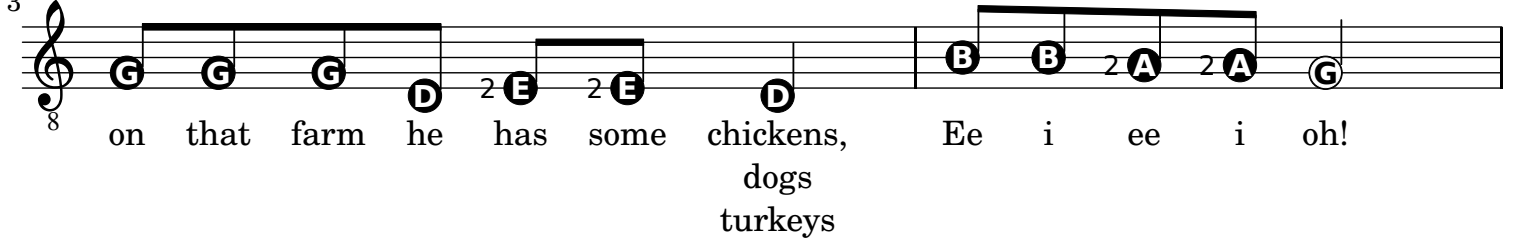


Old Mac - Don - ald has a farm Ee i ee i oh! And

3

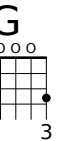


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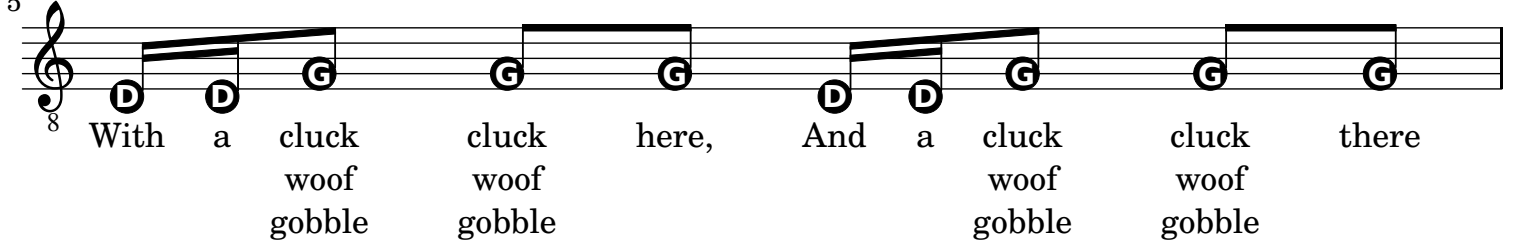


on that farm he has some chickens, Ee i ee i oh!
dogs
turkeys

5



21 3



With a cluck cluck here, And a cluck cluck there
woof woof woof
gobble gobble gobble gobble

6

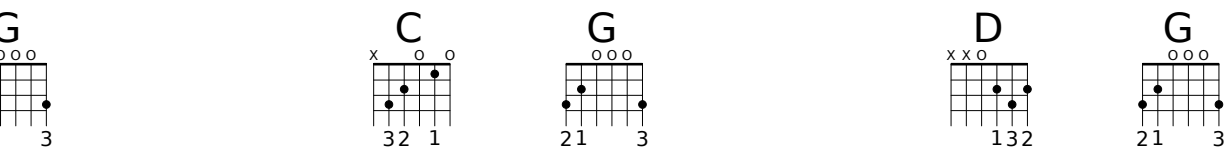


21 3

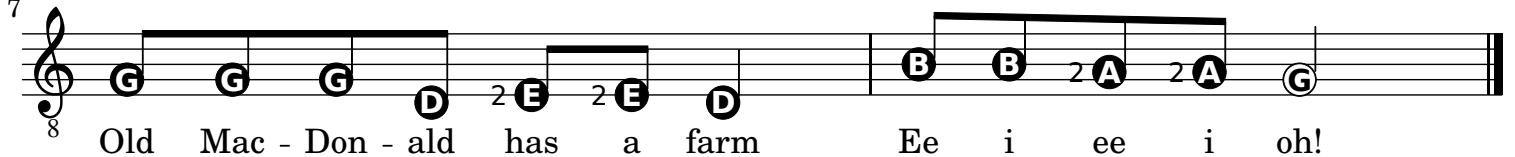


Here a cluck, there a cluck, Ev - ery where a cluck cluck
woof, woof, woof, woof
gobble, gobble, gobble gobble

7



21 3 x 0 0 21 3 x x 0 21 3

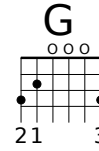
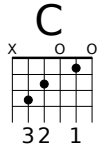


Old Mac - Don - ald has a farm Ee i ee i oh!

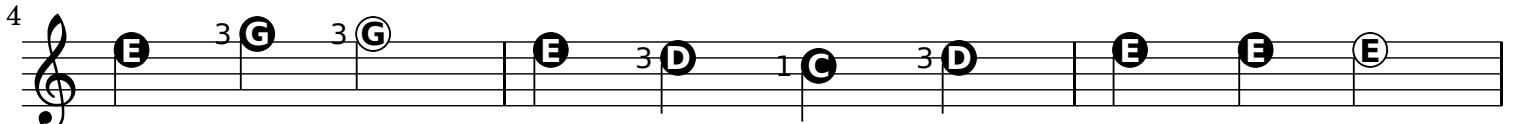
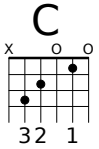
Mary Had a Little Lamb

Lyrics: Sarah Joseph Hale (1788-1879)

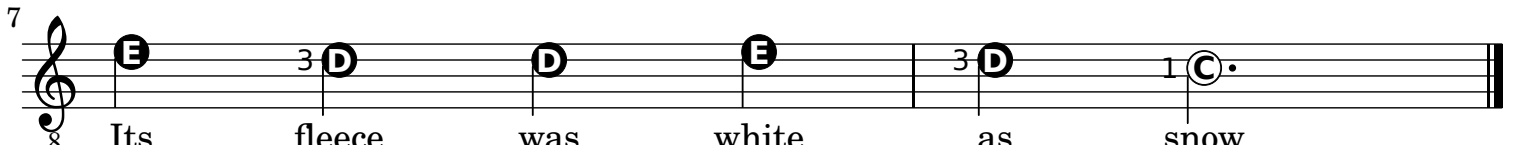
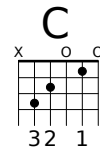
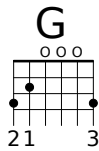
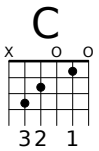
Music: Lowell Mason (1792-1872)



Mar - y had a lit - tle lamb, Lit - tle lamb,
Ever - y - where that Mar - y went, Mar - y went,
It followed her to school one day School one day,
It made the children laugh and play, Laugh and play,



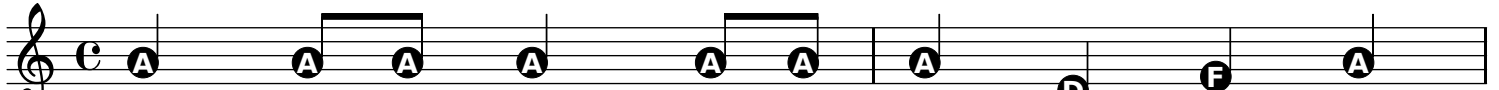
lit - tle lamb, Ma - ry had a lit - tle lamb,
Mar - y went, Ever - y - where that Mar - y went
school one day It followed her to school one day
laugh and play, It made the children laugh and play



Its fleece was white as snow
The lamb was sure to go
Which was a - gainst the rules.
To see a lamb at school

Drunken Sailor

Dm



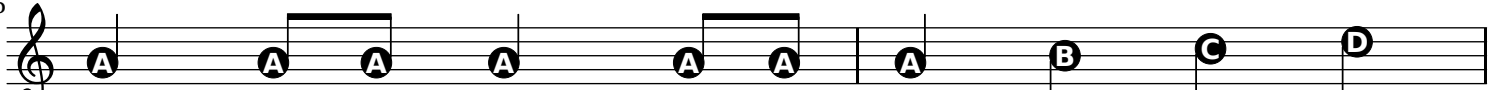
8 What shall we do with a drun - ken sai - lor?
 Put'him in the scupper with a hose - pipe on him.
 Put'him in a long - boat til he gets so - ber.

C



8 What shall we do with a drun - ken sai - lor?
 Put'him in the scupper with a hose - pipe on him.
 Put'him in a long - boat til he gets so - ber.

Dm



8 What shall we do with a drun - ken sai - lor?
 Put'him in the scupper with a hose - pipe on him.
 Put'him in a long - boat til he gets so - ber.

C



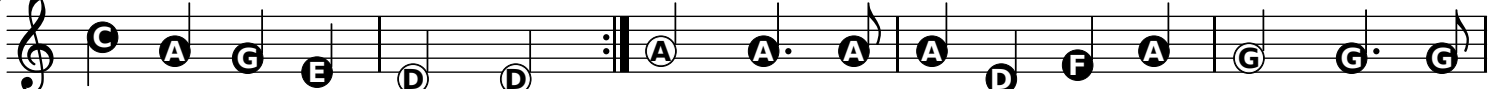
Dm



C



CHORUS



8 Ear - lye in the morn - ing.
 Ear - lye in the morn - ing. Wey, hey, and up she ris - es, wey, hey, and
 Ear - lye in the morn - ing.

C



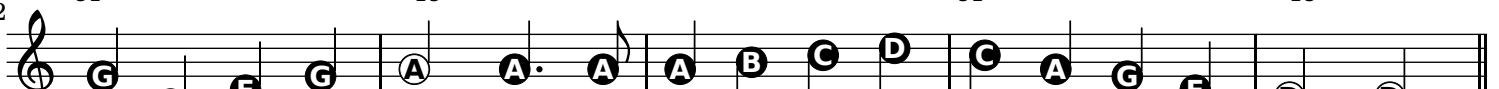
Dm



C

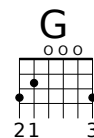
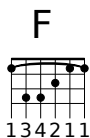
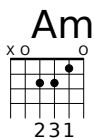
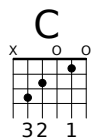


Dm



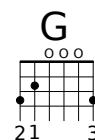
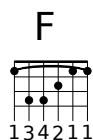
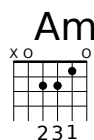
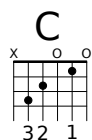
8 up she ris - es, Wey, hey, and up she ris - es, Ear - lye in the morn - ing.

Where Have All The Flowers Gone?



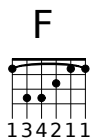
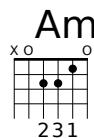
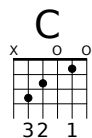
Where have all the flow - ers gone, long time pass - ing?

young girls
young men
sold - iers
grave-yards



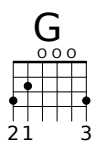
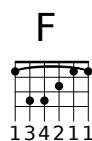
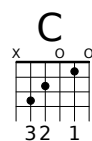
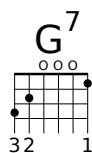
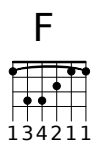
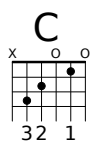
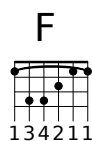
Where have all the flow - ers gone, long time a go?

young girls
young men
sold - iers
grave-yards



Where have all the flow - ers gone, gone to young girls ev - ery one!

young girls
young men
sold - iers
grave-yards
flow - ers



CHORUS
When will they ev - er learn? When will they ev - er learn?

O Canada : Canadian National Anthem / Hymne National

Music: Calixa Lavallée (1842-1891)

English lyrics: Robert Stanley Weir (amended 1968) / les paroles en français: Adolphe-Basile Routhier

8 C G/B Am C G
O Can - a - da! Our home and na - tive land
O Can - a - da! Ter - re de nos ai - eur,

5 C D Em G/D D G
True pa - triot love in all thy sons com - mand With
Ton front est ceint de fleu - rons glo - ri - eux! Car ton

9 Dm G/B C F Dm G
glow - ing hearts we see thee rise The True North strong and free! From
bras sait por - ter l'é - pé - e, Il sait por - ter la croix! Ton his -

13 Dm G/B C D^{sus4} D G
far and wide O Can - a - da, we stand on guard for thee.
toire est une é - po - pé - e, Des plus bril - lants ex - ploits

17 C G/B Am Dm Am/C G/B
God keep our land glo - rious and free!
Et ta va - leux, de foi trem - pée,

21 C E F Am Dm/F E
O Can - a - da, we stand on guard for thee.
Pro - té - ge - ra nos foy - ers et nos droits.

25 C C/E F C/G G C
O Can - a - da, we stand on guard for thee.
Pro - té - ge - ra nos foy - ers et nos droits.

O Come All Ye Faithful (Adeste Fidelis)

Anonymous

A $\text{♩} = 100$
VERSE

O come - all Ye faith - ful Joy - ful and tri - um - phant, O
 Sing, choirs of an - gels, Sing in ex - ul - ta - tion,

5

come ye, O come_ ye to Beth - le - hem.
 Sing all ye cit - i - zens of hea - ven a - bove:

9

Come and be - hold Him, born the King of An - gels; O
 Glor - y to God_ Glor - y in the High - est.

CHORUS

B

come, let us a - dore Him, O come, let us a - dore Him, O

17

come, let us a - dore Him, Chr - ist the Lord.

Open String Étude

Slowly (♩ = 40)

The first system of music is in 4/4 time and consists of five measures. The upper staff is a treble clef with a 4/4 time signature. The lower staff shows open strings with fingerings: ⑥, ②, ③, ②, ①, ①, ①, ①, ⑤, ⑤, ⑤, ⑤, ⑥, ①, ②, ③. Below the staff, the text "1.. 2.. 3.. 4.. 1.. 2.. 3.. 4.. etc." is written, indicating a sequence of notes.

6

The second system of music is in 4/4 time and consists of five measures. The upper staff is a treble clef. The lower staff shows open strings with fingerings: ⑥, ②, ③, ②, ①, ①, ①, ①, ⑤, ⑤, ⑤, ⑤, ⑥, ①, ②, ③.

11

The third system of music is in 4/4 time and consists of five measures. The upper staff is a treble clef. The lower staff shows open strings with fingerings: ⑥, ②, ③, ②, ①, ①, ①, ①, ⑤, ⑤, ⑤, ⑤, ⑥, ①, ②, ③. The text "1.. 2.. 3.. 4.." is written below the staff, indicating a sequence of notes.

Arpeggio Patterns 1

1. p-i-m, p-m-a

Musical notation for arpeggio pattern 1. The piece is in 4/4 time with a tempo of 76. The notation consists of two measures. The first measure starts with a bass clef, a treble clef, and a common time signature of 8. A piano (p) dynamic marking is present. The first measure contains a triplet of eighth notes (m, i, a) followed by a quarter note (m), then a quarter note (p), and a quarter note (m). The second measure contains a triplet of eighth notes (m, i, a) followed by a quarter note (m), then a quarter note (p), and a quarter note (m). The piece ends with a repeat sign and a final chord.

2. p-m-i, p-a-m

Musical notation for arpeggio pattern 2. The piece is in 4/4 time with a tempo of 76. The notation consists of two measures. The first measure starts with a bass clef, a treble clef, and a common time signature of 8. A piano (p) dynamic marking is present. The first measure contains a triplet of eighth notes (a, m, i) followed by a quarter note (m), then a quarter note (p), and a quarter note (m). The second measure contains a triplet of eighth notes (a, m, i) followed by a quarter note (m), then a quarter note (p), and a quarter note (m). The piece ends with a repeat sign and a final chord.

3. p-i-a

Musical notation for arpeggio pattern 3. The piece is in 4/4 time with a tempo of 76. The notation consists of two measures. The first measure starts with a bass clef, a treble clef, and a common time signature of 8. A piano (p) dynamic marking is present. The first measure contains a triplet of eighth notes (i, a) followed by a quarter note (p), then a quarter note (m), and a quarter note (m). The second measure contains a triplet of eighth notes (i, a) followed by a quarter note (p), then a quarter note (m), and a quarter note (m). The piece ends with a repeat sign and a final chord.

4. p-a-i

Musical notation for arpeggio pattern 4. The piece is in 4/4 time with a tempo of 76. The notation consists of two measures. The first measure starts with a bass clef, a treble clef, and a common time signature of 8. A piano (p) dynamic marking is present. The first measure contains a triplet of eighth notes (a, i) followed by a quarter note (p), then a quarter note (m), and a quarter note (m). The second measure contains a triplet of eighth notes (a, i) followed by a quarter note (p), then a quarter note (m), and a quarter note (m). The piece ends with a repeat sign and a final chord.

Leçon No. 1

Fernando Sor (1778-1839)

Opus 60, Introduction à l'Étude de la Guitare

Page 3

rest stroke

1 a 1 m 1 i 1 m p p

5

2 i 1 m 3 # m 4 a p

9

4 a 1 a 4 m 1 m p

13

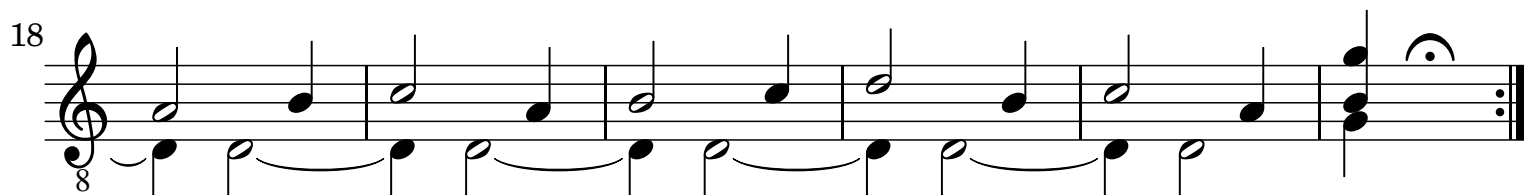
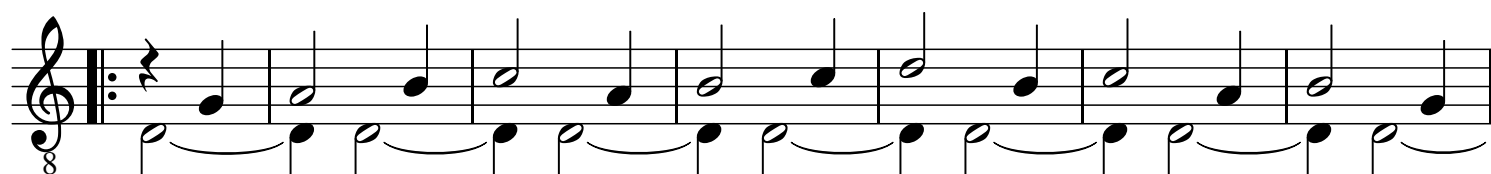
2 p 3 p 2 i 2 p 3 p 1 a 1 m p

Bransle de Poictou, en mode de Cornemufe

Adrian le Roy (circa 1520-1598)

Tiers Livre de Tabvlatvre de Gviterre (1552)

Pages 23-24



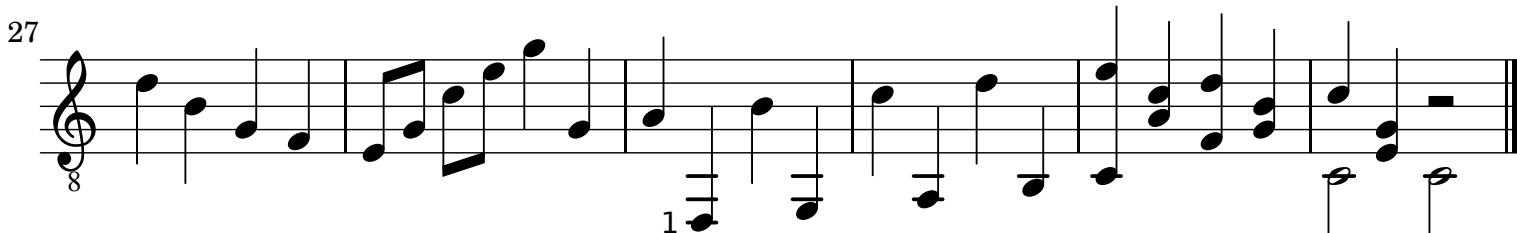
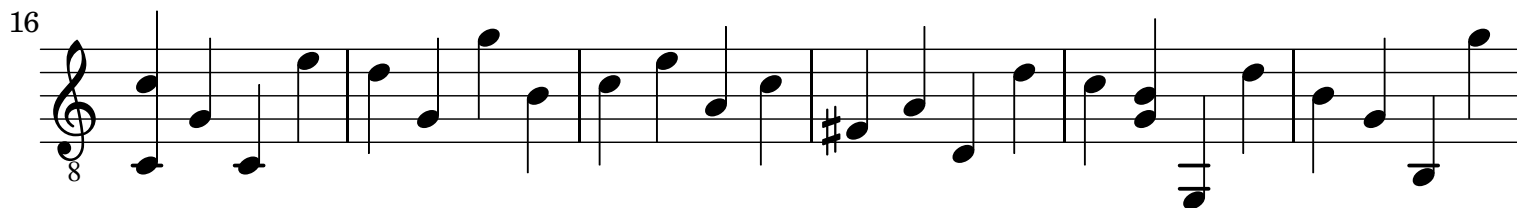
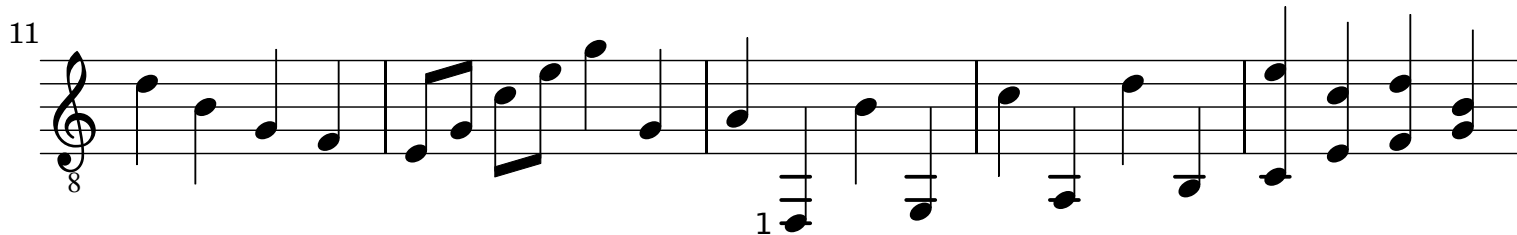
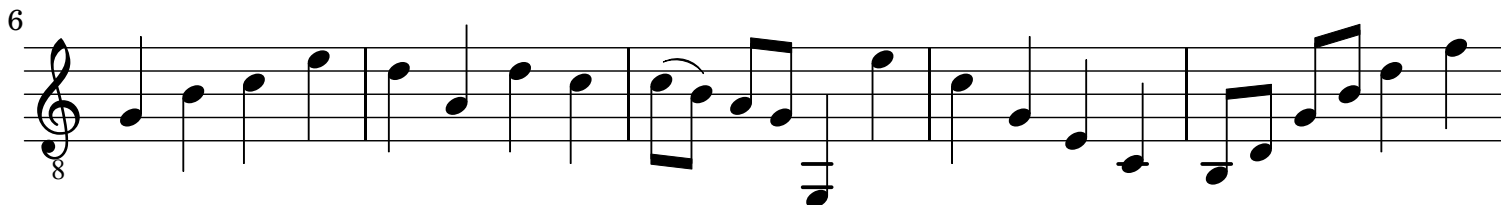
Pièce No. 1

Fernando Sor (1778-1839)

Page 2

Opus 44, Vingt-Quatre Petites Pièces Progressives pour la Guitare

Andante



Pièce No. 2

Fernando Sor (1778-1839)

Page 2

Opus 44, Vingt-Quatre Petites Pièces Progressives pour la Guitare

Allegretto

First system of musical notation (measures 1-8). The piece is in 2/4 time, marked Allegretto. The melody consists of eighth-note patterns, often beamed in pairs. The bass line features chords with slurs, including a 7-fingering indicated below the notes.

Second system of musical notation (measures 9-16). The melody continues with eighth-note patterns. The bass line includes chords with slurs and a 7-fingering.

Third system of musical notation (measures 17-24). The melody continues with eighth-note patterns. The bass line includes chords with slurs, a 7-fingering, and a sharp sign (#) above a note.

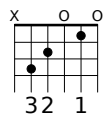
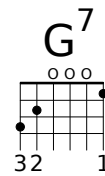
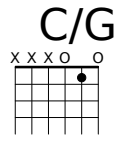
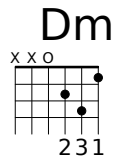
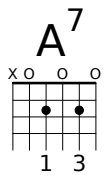
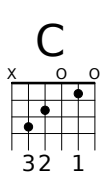
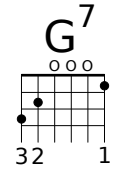
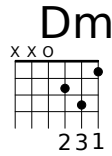
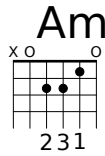
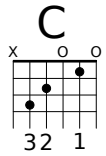
Fourth system of musical notation (measures 25-32). The melody continues with eighth-note patterns. The bass line includes chords with slurs and a 7-fingering.

Fifth system of musical notation (measures 33-40). The melody continues with eighth-note patterns. The bass line includes chords with slurs and a 7-fingering.

Prélude in C

Page 20

Matteo Carcassi (1792–1853)
Opus 59 Méthode complète pour guitare



Prélude in A Minor

Page 32

Matteo Carcassi (1792–1853)
Opus 59 Méthode complète pour guitare

2 m

3

3

2

1 #

4

3

m

a

m

3

3

2

1 #

4

5

3

1 #

1 #

alt.

7

1 #

4

rit.

dim.

Prélude in G

Matteo Carcassi (1792–1853)

Opus 59 Méthode complète pour guitare

Page 22

Musical staff 1: Treble clef, key signature of one sharp (F#), common time signature (C). The staff contains a sequence of eighth-note chords with a melodic line above and a bass line below. The first measure starts with a treble clef, a sharp sign, and a common time signature. The melody consists of eighth notes, and the bass line consists of quarter notes. The staff ends with a double bar line.

Musical staff 2: Treble clef, key signature of one sharp (F#), common time signature (C). The staff contains a sequence of eighth-note chords with a melodic line above and a bass line below. The first measure starts with a treble clef, a sharp sign, and a common time signature. The melody consists of eighth notes, and the bass line consists of quarter notes. The staff ends with a double bar line.

Musical staff 3: Treble clef, key signature of one sharp (F#), common time signature (C). The staff contains a sequence of eighth-note chords with a melodic line above and a bass line below. The first measure starts with a treble clef, a sharp sign, and a common time signature. The melody consists of eighth notes, and the bass line consists of quarter notes. The staff ends with a double bar line.

Prélude in E Minor

Matteo Carcassi (1792–1853)

Opus 59 Méthode complète pour guitare

Page 22

First system of musical notation (measures 1-4). The piece is in E minor (one sharp, F#) and 6/8 time. The notation includes a treble clef, a key signature of one sharp (F#), and a 6/8 time signature. The melody consists of eighth notes, with a triplet of eighth notes in measure 3. The bass line consists of quarter notes. Measure numbers 1, 2, and 3 are indicated below the notes.

Second system of musical notation (measures 5-8). The notation continues with eighth notes and a triplet of eighth notes in measure 7. The bass line consists of quarter notes. Measure numbers 3, 1, and 4 are indicated below the notes.

Third system of musical notation (measures 9-12). The notation continues with eighth notes and a triplet of eighth notes in measure 12. The bass line consists of quarter notes. Measure numbers 1, 2, 3, and 2 are indicated below the notes.

Fourth system of musical notation (measures 13-16). The notation continues with eighth notes and a triplet of eighth notes in measure 14. The bass line consists of quarter notes. Measure numbers 1, 1, 3, and 1 are indicated below the notes. A double bar line is present at the end of the system. A fingering '7' is shown above the final note.

Andante

Pages 32-33

Matteo Carcassi (1792–1853)
Opus 59 Méthode complète pour guitare

The musical score is written for guitar and consists of six systems of music. Each system begins with a treble clef and a guitar-specific bass line. The time signature is 2/4. The piece is marked 'Andante'. The score includes various musical notations such as slurs, accents, and fingerings. The first system starts with a treble clef and a guitar-specific bass line. The second system begins with a treble clef and a guitar-specific bass line, and includes a 3/4 time signature change. The third system begins with a treble clef and a guitar-specific bass line, and includes a 4/4 time signature change. The fourth system begins with a treble clef and a guitar-specific bass line. The fifth system begins with a treble clef and a guitar-specific bass line. The sixth system begins with a treble clef and a guitar-specific bass line, and includes a 3/4 time signature change. The piece concludes with a double bar line.

Exercice No. 1

Fernando Sor (1778-1839)

Page 3

Opus 31, Vingt-Quatre Leçon Progressives pour les Commemçants, Livre I

Andante

Musical notation for measures 1-8. The piece is in 3/4 time. The melody is written on a treble clef staff, and the bass line is on a bass clef staff. The tempo is marked 'Andante' and the dynamics are 'mp'. The notation includes various note values, rests, and fingerings (1, 2, 3, 4). There are also some slurs and accents in the bass line.

Musical notation for measures 9-16. The notation continues from the previous system, showing the progression of the melody and bass line. It includes a key signature change to one sharp (F#) in measure 10. The dynamics remain 'mp'.

Musical notation for measures 17-24. Measure 17 is marked with a repeat sign and a first ending bracket. The dynamics change to 'mf' in measure 17 and back to 'mp' in measure 24. The notation includes various note values, rests, and fingerings.

Musical notation for measures 25-32. The notation continues from the previous system, showing the progression of the melody and bass line. It includes a key signature change to one sharp (F#) in measure 26. The dynamics remain 'mp'.

Leçon No. 13

Fernando Sor (1778-1839)

Opus 60, Introduction à l'Etude de la Guitare

Page 8

Musical staff 1 (measures 1-4): Treble clef, 2/4 time signature. Measure numbers 1, 2, 3, 4 are written above the notes. Fingering numbers (1-4) are written above the notes. Fingerings 3, 2, 3, 2 are written below the notes. Accents are present on measures 1 and 3.

Musical staff 2 (measures 5-8): Treble clef, 2/4 time signature. Measure numbers 5, 6, 7, 8 are written above the notes. Fingering numbers (1-4) are written above the notes. Fingerings 3, 2, 3, 2 are written below the notes. Accents are present on measures 5 and 7.

Musical staff 3 (measures 9-12): Treble clef, 2/4 time signature. Measure numbers 9, 10, 11, 12 are written above the notes. Fingering numbers (1-4) are written above the notes. Fingerings 2, 3, 2, 3 are written below the notes. Accents are present on measures 9 and 11.

Musical staff 4 (measures 13-16): Treble clef, 2/4 time signature. Measure numbers 13, 14, 15, 16 are written above the notes. Fingering numbers (1-4) are written above the notes. Fingerings 2, 3, 2 are written below the notes. Accents are present on measures 13 and 15.

Musical staff 5 (measures 17-20): Treble clef, 2/4 time signature. Measure numbers 17, 18, 19, 20 are written above the notes. Fingering numbers (1-4) are written above the notes. Fingerings 3, 2, 3, 2 are written below the notes. Accents are present on measures 17 and 19.

Musical staff 6 (measures 21-24): Treble clef, 2/4 time signature. Measure numbers 21, 22, 23, 24 are written above the notes. Fingering numbers (1-4) are written above the notes. Fingerings 3, 2, 3, 2 are written below the notes. Accents are present on measures 21 and 23.

Exercice No. 1

Fernando Sor (1778-1839)

Page 2 Opus 35, Vingt-Quatre Exercices Très Faciles et Soigneusement Doigtés, Livre I

Andante

The musical score is written for guitar in C major, 2/4 time, and is marked 'Andante'. It consists of six systems of music, each with a treble and bass staff. The piece is characterized by its simplicity and focus on fingerings and articulation. The first system (measures 1-5) begins with a treble staff containing a sequence of eighth notes and a bass staff with chords and fingerings (3, 3, 2, 2, 3). The second system (measures 6-11) continues the melodic line in the treble and provides harmonic support in the bass. The third system (measures 12-17) features a similar melodic pattern with varied fingerings. The fourth system (measures 18-22) introduces a more complex rhythmic pattern with sixteenth notes in the treble. The fifth system (measures 23-27) returns to a simpler eighth-note melody. The sixth system (measures 28-32) concludes the piece with a final cadence, including a double bar line at the end.

Waltz

Ferdinando Carulli (1770-1841)

Opus 121 Vingt-Quatre Pièces pour Guitarre Seule, No. 1

Page 3

$\text{♩} = 84 - 100$

mf

5

Fine

10

14

19

23

28

D.C. al Fine

Greensleeves

Anonymous

1
2
1
4
1
4
2
1
m
3
3
3

6
2
1
2
m
1
2
2
2

12
1
4
1
3
3
2
2

17
4
4
2
3
3
3
3

22
2
1
2
m
1
2
4
4
2
3
3

27
1
4
1
2
2

Exercice No. 22

Fernando Sor (1778-1839)

Page 10

Opus 35, Vingt-Quatre Exercices Très Faciles et Soigneusement Doigtés, Livre II

$\text{♩} = 108$

5/5 II

6

11

16

anchor F# until *

21

26

31

37

43

6/6 II

4/4 II

5/5 IV

Romanza (d'Amour)

Anonymous (19th Century)

$\text{♩} = 96 - 108$

The musical score consists of nine staves of music. The key signature has one sharp (F#), and the time signature is 3/4. The tempo is marked as quarter note = 96-108. The score includes various ornaments such as mordents, grace notes, and trills. Fingerings are indicated by numbers 1-4. The piece is divided into sections by Roman numerals: I (measures 1-5), VI (measures 6-9), VII (measures 10-13), VIII (measures 14-18), IX (measures 19-22), X (measures 23-26), XI (measures 27-30), and XII (measures 31-34). The score ends with a double bar line and repeat signs.

6

10

14

19

23

27

31

Duet in G

for two guitars

Ferdinando Carulli (1770-1841)

Andante

Measures 1-3 of the Duet in G. The music is in G major and 12/8 time. Measure 1 features a treble clef with a 4-fingered ascending eighth-note scale (G4-A4-B4-C5) and a bass clef with a 2-fingered descending eighth-note scale (G3-F3-E3-D3). Measure 2 continues the scales. Measure 3 shows a 3/4 time signature change and a piano (p) dynamic marking, with both hands playing chords.

Measures 4-6 of the Duet in G. Measure 4 continues the scales from measure 1. Measure 5 features a 4-fingered ascending eighth-note scale in the treble and a 2-fingered descending eighth-note scale in the bass. Measure 6 shows a 3/4 time signature change and a piano (p) dynamic marking, with both hands playing chords.

Measures 7-9 of the Duet in G. Measure 7 continues the scales. Measure 8 features a 4-fingered ascending eighth-note scale in the treble and a 2-fingered descending eighth-note scale in the bass. Measure 9 shows a 3/4 time signature change and a piano (p) dynamic marking, with both hands playing chords.

Measures 10-12 of the Duet in G. Measure 10 continues the scales. Measure 11 features a 4-fingered ascending eighth-note scale in the treble and a 2-fingered descending eighth-note scale in the bass. Measure 12 shows a 3/4 time signature change and a piano (p) dynamic marking, with both hands playing chords.

Measures 13-15 of the Duet in G. Measure 13 continues the scales. Measure 14 features a 4-fingered ascending eighth-note scale in the treble and a 2-fingered descending eighth-note scale in the bass. Measure 15 shows a 3/4 time signature change and a piano (p) dynamic marking, with both hands playing chords.

Fughetta

for two guitars

Ferdinando Carulli (1770-1841)

Allegro

Musical notation for measures 1-10. The piece is in 2/4 time with a key signature of two sharps (F# and C#). The first system shows the beginning of the piece, with the right hand playing a melodic line and the left hand providing harmonic support.

Musical notation for measures 11-20. The notation continues the melodic and harmonic development of the piece.

Musical notation for measures 21-30. The piece continues with intricate melodic patterns and harmonic textures.

Musical notation for measures 31-39. The notation shows the continuation of the piece's rhythmic and melodic motifs.

Musical notation for measures 40-48. The final system of the piece concludes with a series of rhythmic flourishes and a final cadence.

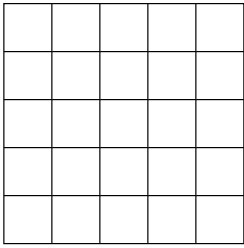
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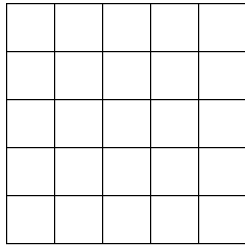
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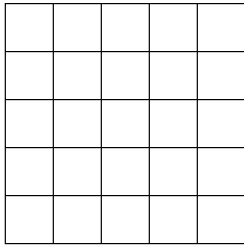
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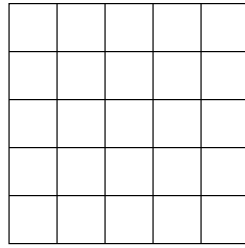
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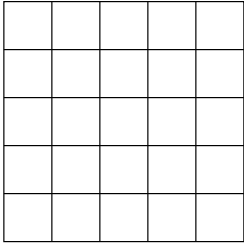
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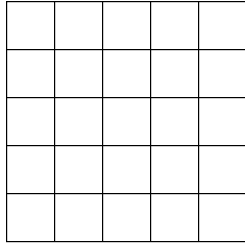
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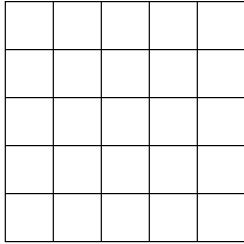
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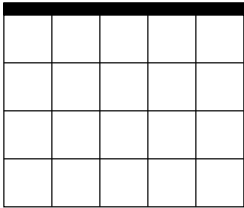
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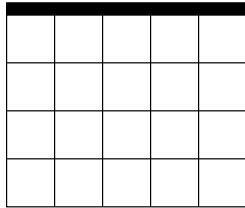
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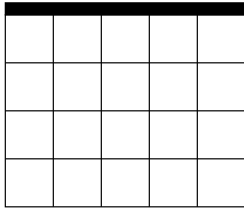
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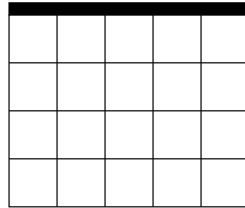
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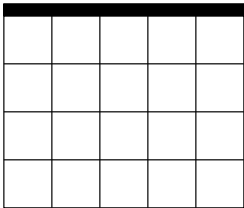
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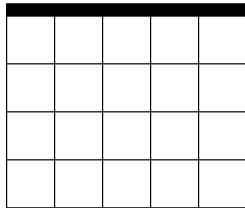
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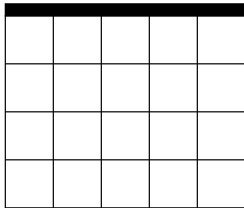
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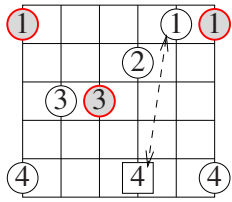
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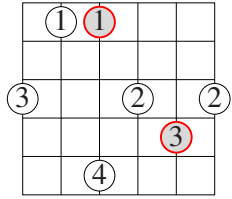
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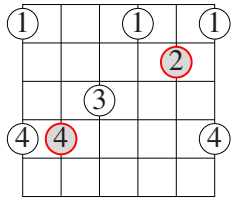
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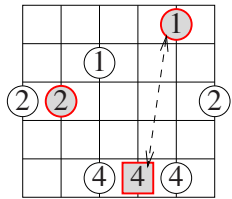
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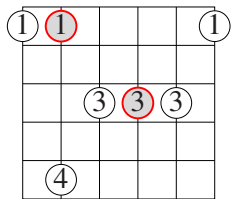
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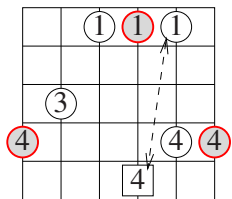
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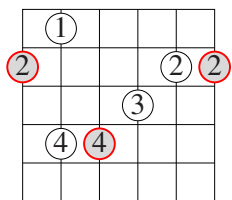
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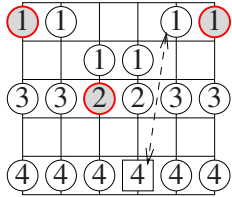
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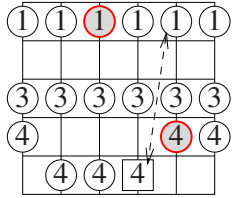
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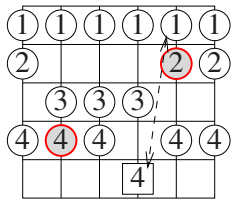
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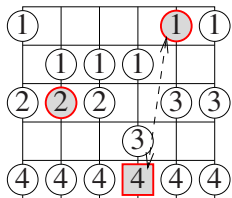
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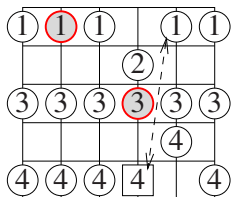
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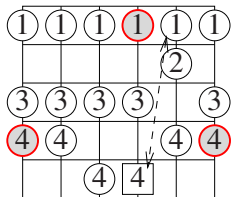
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