

The Overtone Series

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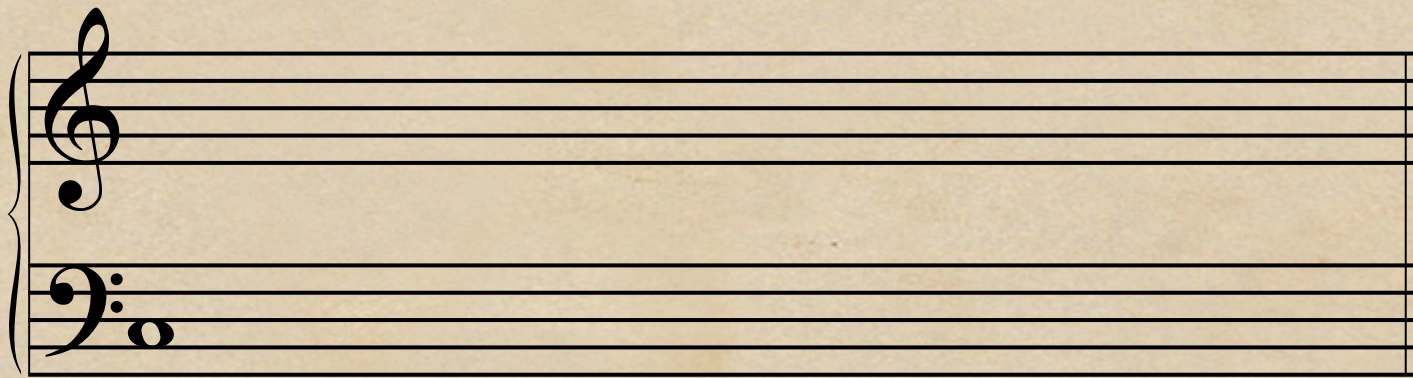


Overtone Series Part 1

BUILDING THE SERIES

Overtone Series

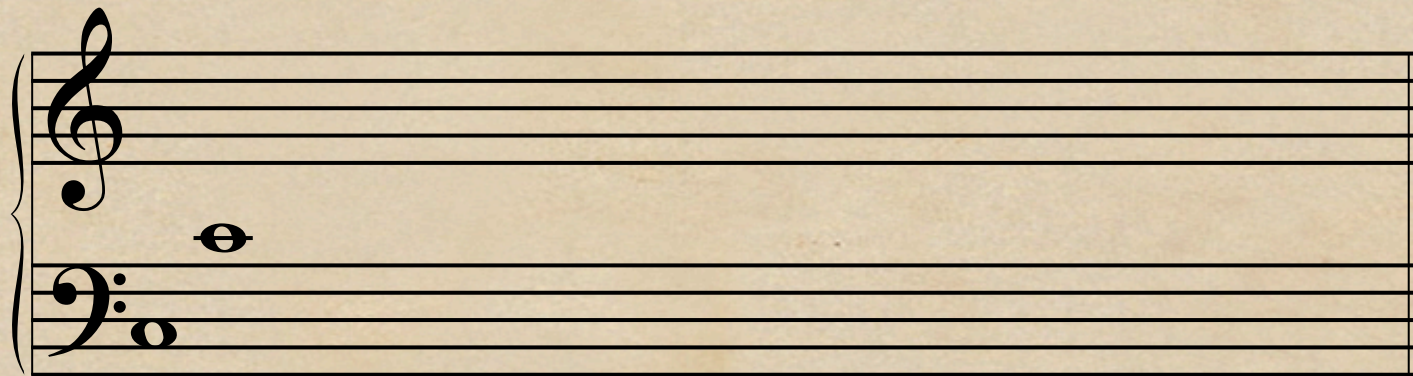
Building the Series



1

Overtone Series

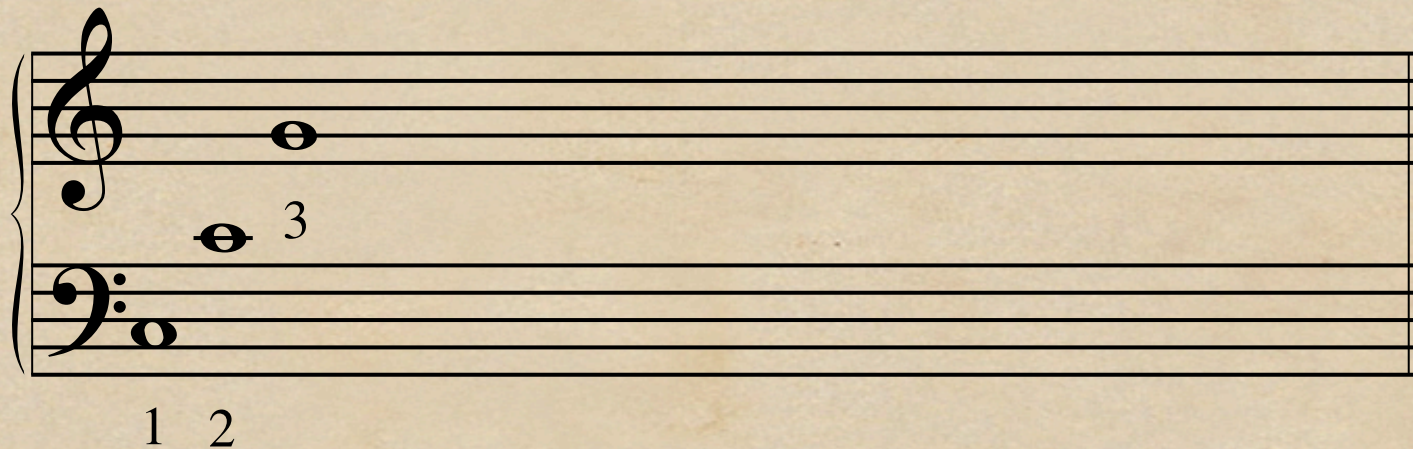
Building the Series



1 2

Overtone Series

Building the Series



Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the construction of an overtone series. The notes are as follows:

- Bass clef: C2 (below the staff), C3 (below the staff), C4 (below the staff).
- Treble clef: C4 (middle C), G4 (first line), E5 (second space), C6 (third space).

Below the staff, the numbers 1, 2, 3, and 4 are placed under the notes C4, G4, E5, and C6 respectively, indicating the sequence of notes to be played.

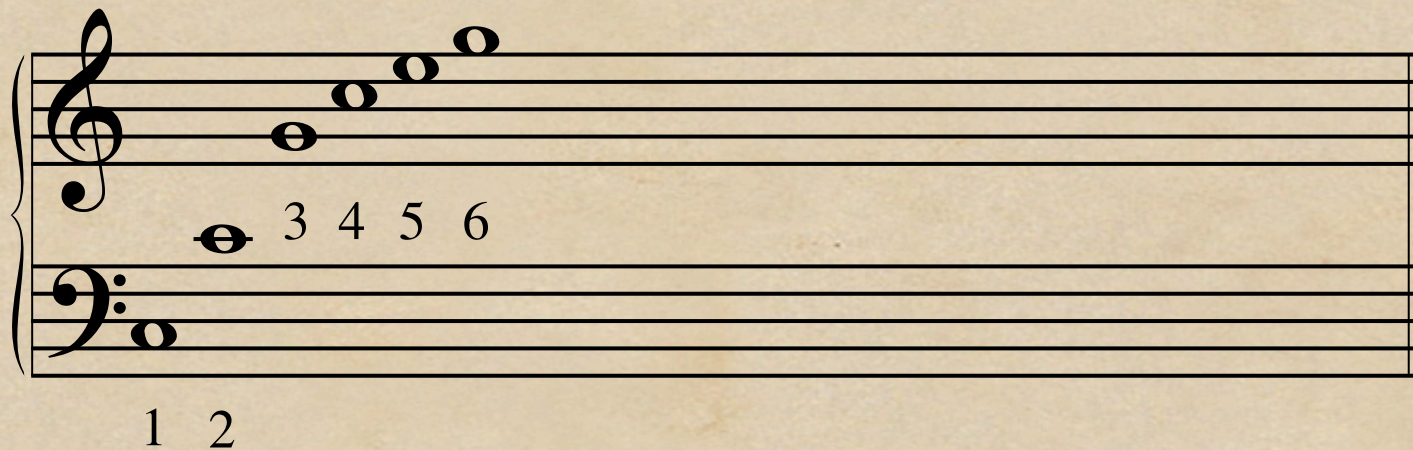
Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The bass clef contains a single note on the first line (C2) with the number '1' below it. The treble clef contains five notes: a whole note on the second space (C3) with '2' below it, a half note on the third space (G3) with '3' above it, a quarter note on the fourth space (B3) with '4' above it, and two eighth notes on the fifth line (C4) with '5' above them. The notes in the treble clef are positioned above the note in the bass clef.

Overtone Series

Building the Series



Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The bass clef contains a single note on the first line (C4) with a finger number '1' below it. The treble clef contains seven notes: C4 (finger 2), G4 (finger 3), A4 (finger 4), B4 (finger 5), C5 (finger 6), D5 (finger 7), and E5 (finger 7 with a flat). The notes are connected by a brace on the left. The numbers 1 through 7 are placed below the notes in the bass clef to indicate their relative positions in the series.

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are: C2 (bass clef), C3 (bass clef), G2 (bass clef), C4 (treble clef), E4 (treble clef), G4 (treble clef), Bb4 (treble clef), and C5 (treble clef). Fingerings are indicated by numbers 1-8 below the notes. The notes C4, E4, G4, Bb4, and C5 are underlined.

Staff	Line	Note	Fingering
Bass	4	C ₂	1
Bass	3	C ₃	2
Bass	2	G ₂	
Treble	1	C ₄	3
Treble	2	E ₄	4
Treble	3	G ₄	5
Treble	4	B _{b4}	6
Treble	5	C ₅	7
Treble	6		8

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are: C2 (bass clef), C3 (bass clef), G2 (bass clef), C3 (bass clef), E3 (bass clef), G3 (bass clef), Bb3 (bass clef), C4 (treble clef), E4 (treble clef), G4 (treble clef). The notes C4, E4, and G4 are underlined. Fingerings are indicated by numbers 1-2 under C2, 3-4-5-6-7-8-9 under C3, and 1-2 under C4. The notes G2, C3, E3, G3, Bb3, and C4 have no fingerings shown.

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the first ten overtones of a fundamental frequency. The notes are as follows:

- 1: C2 (bass clef, one ledger line below)
- 2: C3 (bass clef, two ledger lines below)
- 3: G2 (bass clef, two ledger lines below)
- 4: E2 (bass clef, two ledger lines below)
- 5: C3 (bass clef, two ledger lines below)
- 6: G2 (bass clef, two ledger lines below)
- 7: F2 (bass clef, two ledger lines below)
- 8: E2 (bass clef, two ledger lines below)
- 9: D2 (bass clef, two ledger lines below)
- 10: C3 (bass clef, two ledger lines below)

The notes in the treble clef are:

- 1: C4 (middle C, one ledger line below)
- 2: C5 (one ledger line below)
- 3: G4 (below staff)
- 4: E4 (below staff)
- 5: C5 (below staff)
- 6: G4 (below staff)
- 7: F4 (below staff)
- 8: E4 (below staff)
- 9: D4 (below staff)
- 10: C5 (below staff)

Below the staff, the numbers 1 through 10 are aligned with the notes. The numbers 1 and 2 are positioned below the bass clef, while 3 through 10 are positioned between the two staves.

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are numbered 1 through 11. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (G3), 7 (Bb3), 8 (C4), 9 (E4), 10 (G4), 11 (Bb4). The notes are written on the staff lines, with some notes having accidentals (flat for 7, sharp for 11). The notes are numbered 1 through 11 below the staff.

1 2

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are numbered 1 through 12. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (G3), 7 (Bb3), 8 (C4), 9 (D4), 10 (E4), 11 (F#4), 12 (G4). The notes are placed on the staff lines as follows: 1 on the first line of the bass clef, 2 on the first space of the bass clef, 3 on the second space of the bass clef, 4 on the second line of the bass clef, 5 on the second space of the bass clef, 6 on the third space of the bass clef, 7 on the third line of the bass clef, 8 on the third space of the bass clef, 9 on the fourth space of the bass clef, 10 on the fourth line of the bass clef, 11 on the first space of the treble clef, and 12 on the first line of the treble clef.

1 2

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are numbered 1 through 13. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (G3), 7 (Bb3), 8 (C4), 9 (E4), 10 (G4), 11 (Bb4), 12 (C5), 13 (E5). The notes are placed on the staff lines as follows: 1 on the first line of the bass clef, 2 on the first space, 3 on the second line, 4 on the second space, 5 on the third line, 6 on the third space, 7 on the fourth line, 8 on the fourth space, 9 on the first line of the treble clef, 10 on the first space, 11 on the second line, 12 on the second space, and 13 on the third line. The notes are connected by a curved line above the treble clef staff.

1 2

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are numbered 1 through 14. The first two notes (1 and 2) are in the bass clef, and the remaining notes (3-14) are in the treble clef. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (G3), 7 (Bb3), 8 (C4), 9 (D4), 10 (E4), 11 (F#4), 12 (G4), 13 (Ab4), 14 (Bb4). The notes are written as half notes with stems pointing up. The 7th, 11th, and 13th notes have accidentals (flat, sharp, and flat respectively).

1 2

3 4 5 6 7 8 9 10 11 12 13 14

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are numbered 1 through 15. The first two notes (1 and 2) are in the bass clef, while the remaining notes (3-15) are in the treble clef. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (G3), 7 (Bb3), 8 (C4), 9 (D4), 10 (E4), 11 (F#4), 12 (G4), 13 (Ab4), 14 (Bb4), 15 (C5). The notes are written as half notes with stems pointing upwards. The numbers 1 and 2 are placed below the first two notes, and numbers 3 through 15 are placed below the notes in the treble clef.

1 2

3 4 5 6 7 8 9 10 11 12 13 14 15

Overtone Series

Building the Series

A musical score on a grand staff (treble and bass clefs) illustrating the overtone series. The notes are numbered 1 through 16. The notes are: 1 (C2), 2 (C3), 3 (G2), 4 (C3), 5 (E3), 6 (G3), 7 (Bb3), 8 (C4), 9 (D4), 10 (E4), 11 (F#4), 12 (G4), 13 (A4), 14 (Bb4), 15 (C5), 16 (C5). The notes are placed on the staff lines as follows: 1 on the first line of the bass clef, 2 on the first line of the treble clef, 3 on the first space of the bass clef, 4 on the first space of the treble clef, 5 on the second space of the bass clef, 6 on the second space of the treble clef, 7 on the second space of the bass clef with a flat, 8 on the second space of the treble clef, 9 on the third space of the bass clef, 10 on the third space of the treble clef, 11 on the third space of the bass clef with a sharp, 12 on the third space of the treble clef, 13 on the fourth space of the bass clef, 14 on the fourth space of the treble clef with a flat, 15 on the fourth space of the bass clef, and 16 on the fourth space of the treble clef. The notes are connected by a brace on the left side of the grand staff.

1 2

Overtone Series

3, 6, 12 = Sharp

5, 10 = Flat

7, 14 = Very Flat

A musical staff with a treble clef and a bass clef. The notes of the overtone series are written on the staff. The notes are: 1 (C), 2 (C), 3 (G), 4 (C), 5 (F), 6 (G), 7 (E), 8 (C), 9 (C), 10 (F), 11 (C), 12 (G), 13 (C), 14 (E), 15 (C), 16 (C). The notes are marked with colored shapes: 3 (red triangle), 4 (orange circle), 5 (blue square), 6 (red triangle), 7 (purple inverted triangle), 8 (orange circle), 9 (orange circle), 10 (blue square), 11 (orange circle), 12 (red triangle), 13 (orange circle), 14 (purple inverted triangle), 15 (orange circle), 16 (orange circle). The notes are also marked with accidentals: 3 (sharp), 6 (sharp), 7 (flat), 10 (flat), 12 (sharp), 14 (flat), 15 (natural), 16 (natural).

1 2

1, 2, 4, 8, 16 = OK

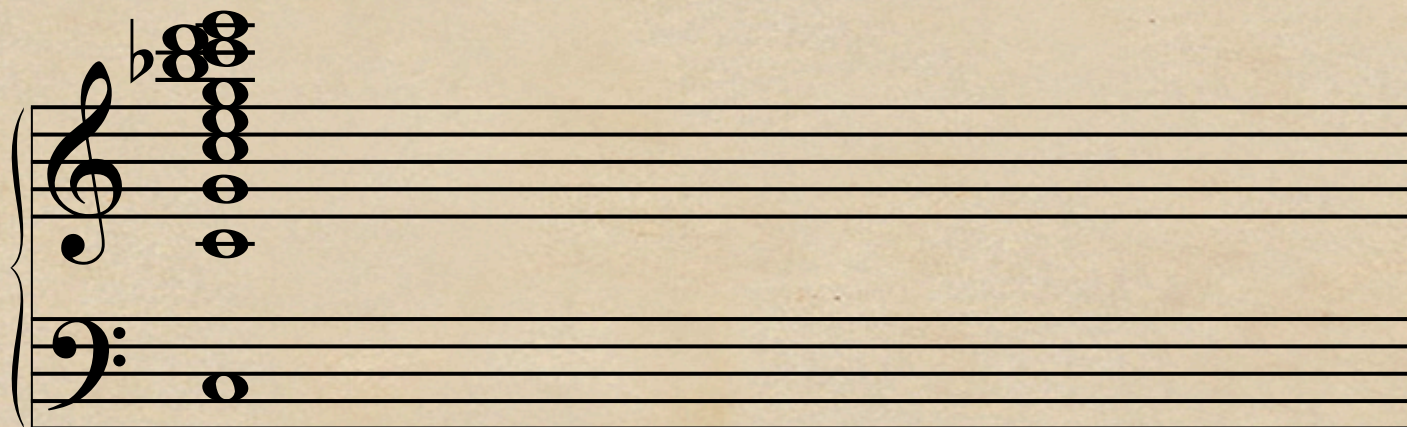
Overtone Series
Part 2

THE SEVEN SERIES

Overtone Series



C Series (open)



OPEN

Overtone Series



B Series (2nd Valve)

Musical notation for the B series overtone series. The notation is written on three staves: Treble Clef, Bass Clef, and a combined staff. The notes are as follows:

Staff	Notes
Treble Clef	B ₂ , B ₃ , D ₄ , E ₄ , F ₄ , G ₄ , A ₄ , B ₄ , C ₅ , D ₅ , E ₅ , F ₅ , G ₅
Bass Clef	B ₂ , B ₃ , D ₄ , E ₄ , F ₄ , G ₄ , A ₄ , B ₄ , C ₅ , D ₅ , E ₅ , F ₅ , G ₅
Combined Staff	B ₂ , B ₃ , D ₄ , E ₄ , F ₄ , G ₄ , A ₄ , B ₄ , C ₅ , D ₅ , E ₅ , F ₅ , G ₅

OPEN 2

Overtone Series



Musical notation illustrating the overtone series for an open string. The notation is presented on a grand staff with a treble clef and a bass clef. The notes are as follows:

Staff	Line	Notes
Treble Clef	5	G ^b (2nd overtone)
	4	B ^b (3rd overtone)
	3	D ^b (4th overtone)
	2	F ^b (5th overtone)
	1	G ^b (6th overtone)
Bass Clef	4	G (1st overtone)
	2	G (2nd overtone)

Labels below the staves: OPEN (under the bass clef staff) and 2 (under the treble clef staff).

Overtone Series



Bb Series (1st valve)

Musical notation for the Bb overtone series. The notation is written on a grand staff (treble and bass clefs). The notes are: Bb (2nd line), Bb (3rd space), Bb (4th space), Bb (5th space), Bb (6th space), Bb (7th space), Bb (8th space), Bb (9th space), Bb (10th space), Bb (11th space), Bb (12th space). The notes are grouped into three measures: the first measure contains the first three notes (Bb, Bb, Bb), the second measure contains the next three notes (Bb, Bb, Bb), and the third measure contains the final five notes (Bb, Bb, Bb, Bb, Bb). The notes are labeled with their corresponding fingerings: OPEN, 2, 1.

OPEN 2 1

Overtone Series



Musical notation for the overtone series of the open string, second fret, and first fret. The notation is presented on a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The first measure is labeled "OPEN" and shows the overtone series for the open string. The second measure is labeled "2" and shows the overtone series for the second fret. The third measure is labeled "1" and shows the overtone series for the first fret. The notes are represented by circles on the staff lines, with accidentals (sharps and flats) indicating the pitch of each overtone.

Measure	Fret	Label	Notes (from lowest to highest)
1	Open	OPEN	C2, C3, G2, C3, E3, G3, Bb3, C4
2	2	2	C#2, C#3, G#2, C#3, E#3, G#3, B#3, C#4
3	1	1	Bb1, Bb2, Fb1, Bb2, Db2, Fb2, Ab2, Bb2

Overtone Series



A Series (12 or 3)

A musical score showing the overtone series for the note A. It consists of a grand staff with a treble clef and a bass clef. The notation is as follows:
- Measure 1: Treble clef has a whole note chord of A2, A3, A4, A5, A6, A7. Bass clef has a whole note A2. The text "OPEN" is written below the bass clef.
- Measure 2: Treble clef has a whole note chord of A3, A4, A5, A6, A7, A8. Bass clef has a whole note A3. The text "2" is written below the bass clef.
- Measure 3: Treble clef has a whole note chord of A4, A5, A6, A7, A8, A9. Bass clef has a whole note A4. The text "1" is written below the bass clef.
- Measure 4: Treble clef has a whole note chord of A5, A6, A7, A8, A9, A10, A11. Bass clef has a whole note A5. The text "12 or 3" is written below the bass clef.
The notes in the treble clef are marked with accidentals: flat for A2 and A3, sharp for A4, A5, A6, and A7, and natural for A8 through A11.

Overtone Series



OPEN

2

1

12
or 3

Overtone Series



Ab Series (23)

Musical notation for the Ab overtone series, showing the first five notes (OPEN, 2, 1, 12, 23) and their corresponding fret positions (or 3).

Labels below the notation: OPEN, 2, 1, 12, 23, or 3

Overtone Series



The musical notation consists of two staves, a treble clef staff and a bass clef staff, connected by a brace on the left. The notation shows the overtone series for five different fretted positions and the open string. The notes are represented by circles on the staff lines, with accidentals (sharps and flats) indicating the pitch. The fret numbers are written below the notes.

Fret	Notes (Treble Staff)	Notes (Bass Staff)
OPEN	G ₄ , B ₄ , D ₅ , E ₅ , F ₅ , G ₅	G ₂
2	A ₄ , C ₅ , E ₅ , F ₅ , G ₅ , A ₅	A ₂
1	F ₄ , A ₄ , C ₅ , D ₅ , E ₅ , F ₅	F ₂
12 or 3	G ₄ , B ₄ , D ₅ , E ₅ , F ₅ , G ₅	G ₂
23	G ₄ , B ₄ , D ₅ , E ₅ , F ₅ , G ₅	G ₂

Overtone Series

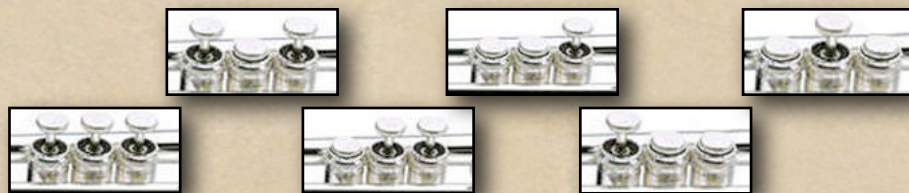


G Series (13)

Musical notation for the G Series (13) overtone series, showing the first six notes on a grand staff (treble and bass clefs). The notes are: OPEN, 2, 1, 12, 23, 13. The notation includes accidentals (sharps and flats) and a double bar line at the end.

OPEN 2 1 12 23 13
or 3

Overtone Series



Musical notation for the overtone series of a C major chord, displayed on a grand staff (treble and bass clefs). The notes are arranged in six measures, corresponding to the harmonics:

- Measure 1: OPEN (C2)
- Measure 2: 2 (C3)
- Measure 3: 1 (G2)
- Measure 4: 12 (C3, E3, G3)
- Measure 5: 23 (C3, E3, G3, Bb3, C4)
- Measure 6: 13 (C3, E3, G3, Bb3, C4, D4)

Labels below the staff: OPEN, 2, 1, 12, 23, 13, or 3

Overtone Series



Gb Series (123)

OPEN 2 1 12
or 3 23 13 123

Overtone Series

Pitch Tendencies (valves)

The diagram illustrates the overtone series for various trumpet valve positions. Above the musical notation, icons indicate the valve settings: three 'ok' circles, a red triangle 's#', a blue square '*sb', a red triangle 'm#', and a red triangle 'v#'. Below the notation, the valve positions are listed: OPEN, 2, 1, 12, 23, 13, and 123. A blue square '*sb' is placed below the '12 or 3' position. The musical notation shows the overtone series for each position, with the bass clef staff showing the fundamental pitch and the treble clef staff showing the overtones.

* Can vary depending on the manufacturer.

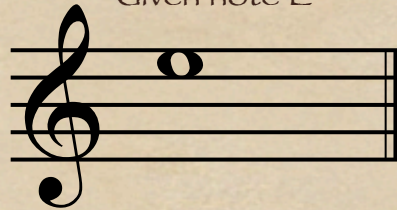
Overtone Series
Part 3a

ALL POSSIBLE FINGERINGS

Overtone Series

All possible fingerings

Given note E

A musical score for the overtone series of E. It consists of seven measures. Each measure shows a different fingering arrangement for the overtone series. The notes are E, G, B, C, D, F, and A. The fingerings are: OPEN, 2, 1, 12, 23, 13, and 123. The score is written on a grand staff with treble and bass clefs.

OPEN

2

1

12

23

13

123

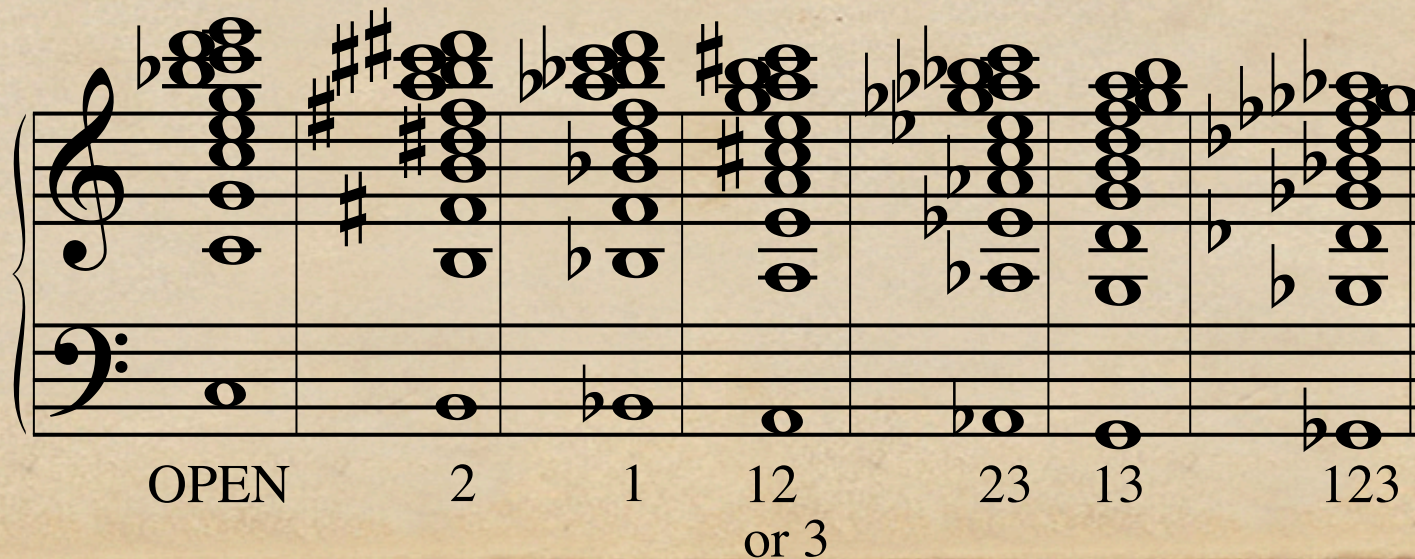
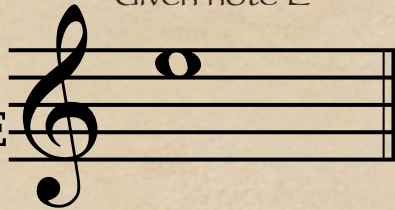
or 3

Overtone Series

All possible fingerings

Given note E

- ◆ Check for given note **NONE**



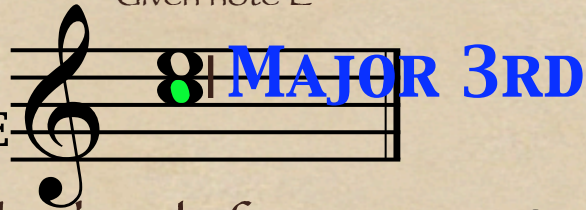
The image shows a musical score for an overtone series. It consists of a grand staff with a treble clef on top and a bass clef on the bottom. The score is divided into seven measures. Each measure contains a chord of notes, with the bass clef part having a single note. The notes in the treble clef part are: E4, E5, E6, E7, E8, E9, E10. The notes in the bass clef part are: E2, E3, E4, E5, E6, E7, E8. The fingerings for the bass clef part are: OPEN, 2, 1, 12 or 3, 23, 13, 123. The notes in the treble clef part are: E4, E5, E6, E7, E8, E9, E10. The notes in the bass clef part are: E2, E3, E4, E5, E6, E7, E8.

OPEN 2 1 12 or 3 23 13 123

Overtone Series

All possible fingerings

Given note E



- ◆ Check for given note **NONE**
- ◆ Think down Major 3rd, check for series **OPEN**

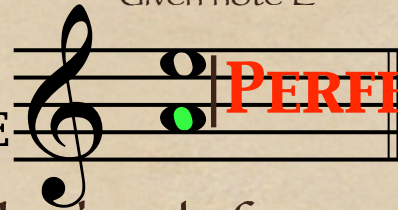
A musical staff in treble clef showing seven chords. A green arrow points down to the first chord. Below the staff, fingerings are indicated: OPEN, 2, 1, 12 or 3, 23, 13, 123.

Chord	Key Signature	Fingering
1	B-flat	OPEN
2	D	2
3	B-flat	1
4	D	12 or 3
5	B-flat	23
6	None	13
7	B-flat	123

Overtone Series

All possible fingerings

Given note E



- ◆ Check for given note **NONE**
- ◆ Think down Major 3rd, check for series **OPEN**
- ◆ Think down Perfect 5th, check for series **12 OR 3**

OPEN 2 1 12
or 3 23 13 123

Overtone Series

All possible fingerings

Given note E

- ◆ Check for given note **NONE**



- ◆ Think down Major 3rd, check for series **OPEN**

- ◆ Think down Perfect 5th, check for series **12 OR 3**

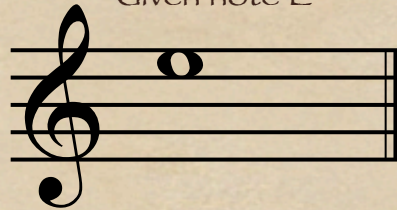
- ◆ Think down minor 7th, check for series **123**

OPEN 2 1 12
or 3 23 13 123

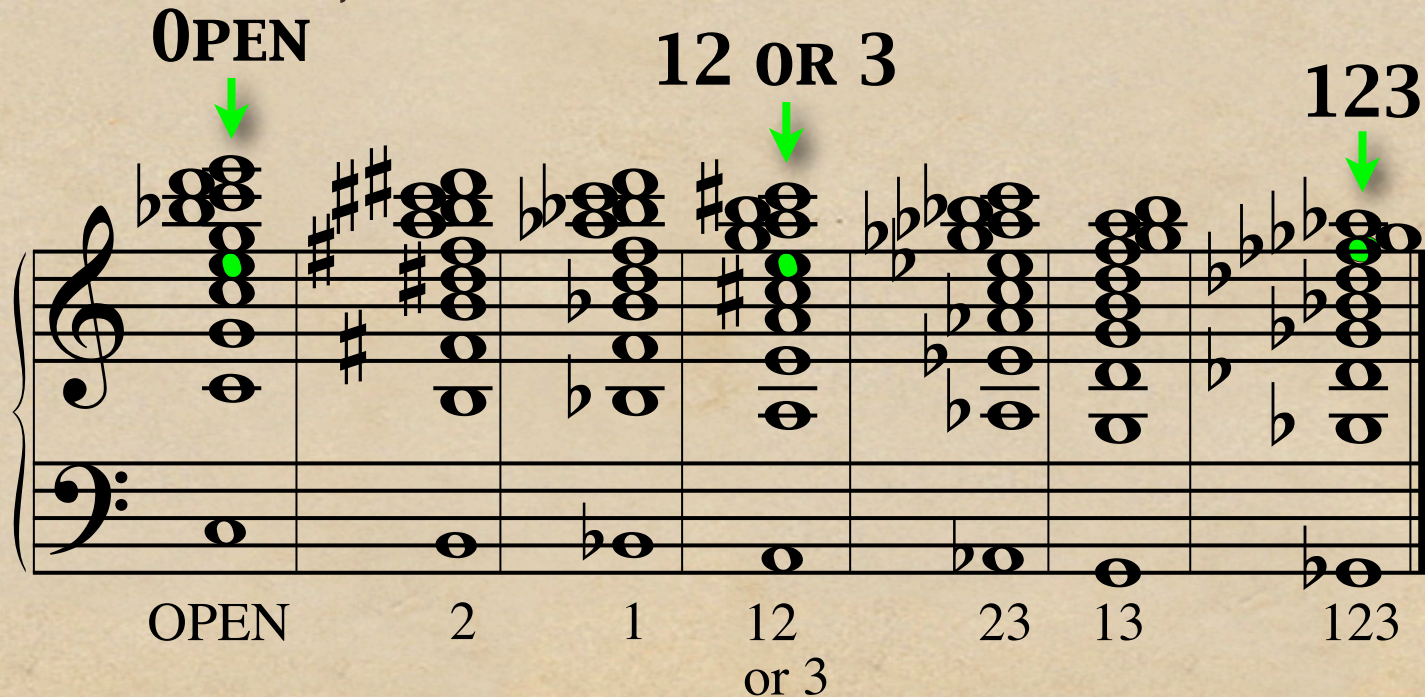
Overtone Series

All possible fingerings

Given note E



- There are 4 possible fingerings:



The diagram illustrates seven different chord voicings for the overtone series of E. Each voicing is shown on a grand staff (treble and bass clefs). Fingerings are indicated by green arrows and text above the notes:

- OPEN**: Indicated by a green arrow pointing to the open E string on the treble clef.
- 2**: Indicated by a green arrow pointing to the second fret on the treble clef.
- 1**: Indicated by a green arrow pointing to the first fret on the treble clef.
- 12 OR 3**: Indicated by a green arrow pointing to the 12th fret on the treble clef.
- 23**: Indicated by a green arrow pointing to the 23rd fret on the treble clef.
- 13**: Indicated by a green arrow pointing to the 13th fret on the treble clef.
- 123**: Indicated by a green arrow pointing to the 123rd fret on the treble clef.

The fingerings are also listed below the corresponding notes in the bass clef: OPEN, 2, 1, 12 or 3, 23, 13, 123.

Overtone Series
Part 3b

CHOOSE PREFERRED FINGERING

Overtone Series

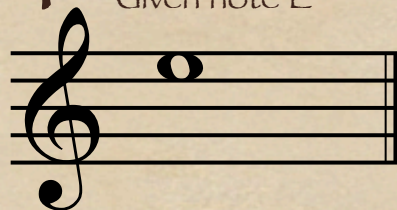
Choosing preferred fingering

- ◆ Least number of valves,
- ◆ Unless it involves 3rd valve,
- ◆ Or is the 7th partial

Overtone Series

Choosing preferred fingering

Given note E



- ◆ Least number of valves

OPEN 12 OR 3 123

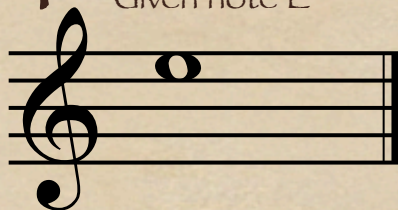
A musical staff with a treble clef showing overtone series for various notes. The notes are: OPEN, D (two sharps), C (one sharp), B (one flat), A (one sharp), G (one flat), F (two flats), and E (one flat). The overtone series are shown in the treble clef, and the fundamental notes are in the bass clef. Fingerings are indicated below the notes: OPEN, 2, 1, 12 or 3, 23, 13, and 123. The 'OPEN' label is highlighted in a green box.

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering

Given note E



- ◆ Least number of valves,
- ◆ Unless it involves 3rd valve

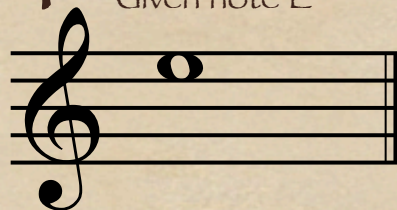
OPEN ~~12 OR 3~~ 123

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering

Given note E



- ◆ Least number of valves,
- ◆ Unless it involves 3rd valve,
- ◆ Or is the 7th partial

OPEN ~~12 OR 3~~ ~~123~~

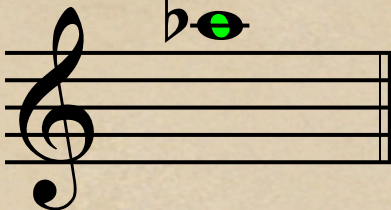
OPEN 2 1 12 23 13 123

or 3

Overtone Series

All possible fingerings

Given note Ab



- ◆ Check for given note 23



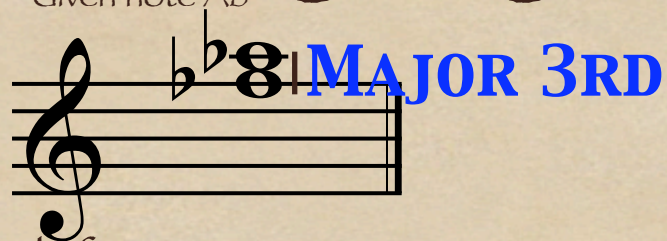
The image shows a musical score for a piano, consisting of a treble and a bass staff. The score displays seven different chord voicings for the overtone series of Ab. The notes in the treble staff are: Ab, Bb, C, D, Eb, F, G. The notes in the bass staff are: Ab, Ab, Ab, Ab, Ab, Ab, Ab. The voicings are: 1. OPEN (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab); 2. (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab); 1 (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab); 12 or 3 (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab); 23 (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab); 13 (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab); 123 (treble: Ab, Bb, C, D, Eb, F, G; bass: Ab). A green arrow points to the 23 fingering.

OPEN 2 1 12 or 3 23 13 123

Overtone Series

All possible fingerings

Given note Ab



- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series **NONE**

OPEN 2 1 12
or 3 23 13 123

Overtone Series

All possible fingerings

Given note Ab



- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series **NONE**
- ◆ Think down Perfect 5th, check for series **NONE**

OPEN 2 1 12 23 13 123

or 3

Overtone Series

All possible fingerings

Given note Ab



- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series NONE
- ◆ Think down Perfect 5th, check for series NONE
- ◆ Think down minor 7th, check for series 1

OPEN 2 1 12 or 3 23 13 123

Overtone Series

All possible fingerings

Given note Ab

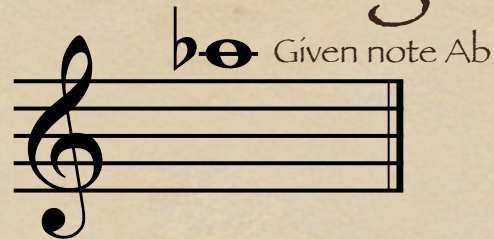


- ◆ Check for given note 23
- ◆ Think down Major 3rd, check for series NONE
- ◆ Think down Perfect 5th, check for series NONE
- ◆ Think down minor 7th, check for series 1
- ◆ Think down Major 9th, check for series 123

OPEN 2 1 12
or 3 23 13 123

Overtone Series

All possible fingerings



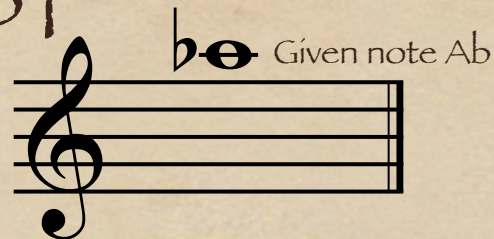
- ◆ There are 3 possible fingerings:

1
23
123

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering



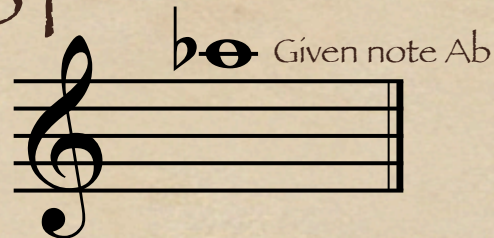
- ◆ Least number of valves

1 23 123

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering



- ◆ Least number of valves
- ◆ Unless it involves 3rd valve

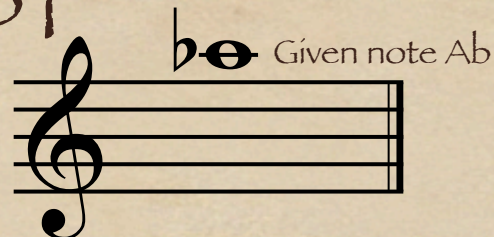
A musical staff showing the overtone series for various notes. The notes are arranged in a sequence from left to right. Above each note is a green box containing a number representing the preferred fingering. Below the staff are labels for the notes and their corresponding valve counts.

Note	Fingering	Valves
OPEN		
B2	2	0
Bb2	1	1
B#2	12	2
Bb3	23	3
B3	13	4
Bb3	123	5

or 3

Overtone Series

Choosing preferred fingering



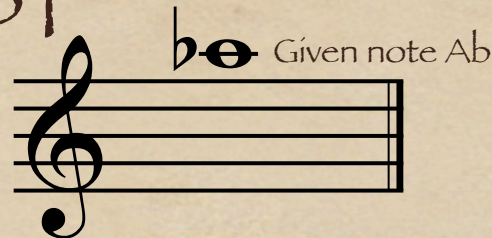
- ◆ Least number of valves
- ◆ Unless it involves 3rd valve
- ◆ Or is the 7th partial

1 23 123

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Choosing preferred fingering



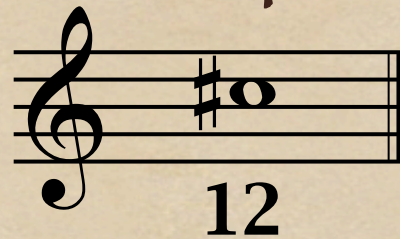
- ◆ Least number of valves
- ◆ Unless it involves 3rd valve
- ◆ Or is the 7th partial

Seven overtone series for the given note Ab are shown on a musical staff with a treble clef. Each series consists of notes on the staff, with a fingering label below. The series are: OPEN, 2, 1, 12 or 3, 23, 13, and 123. The '1' series has a red 'X' over it, and the '23' series has a green box around it.

OPEN 2 1 12 or 3 23 13 123

Overtone Series

Pitch Tendencies (partials + valves)

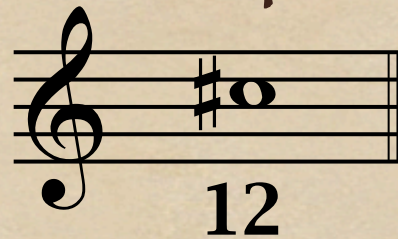


A musical score for a trumpet, consisting of a treble clef staff and a bass clef staff. The treble staff contains seven chords, each representing an overtone of the fundamental G4. The bass staff contains the corresponding fingerings for each overtone. A green arrow points to the fifth partial (G5) in the fourth measure.

Partial	Frequency Ratio	Valve Position	Fingering
1	1/1	None	OPEN
2	2/1	None	2
3	3/1	None	1
4	4/1	None	12
5	5/1	None	or 3
6	6/1	1	23
7	7/1	2	13
8	8/1	3	123

Overtone Series

Pitch Tendencies (partials + valves)



5, 10 = Flat

5th partial = flat
12 valve combo = sharp

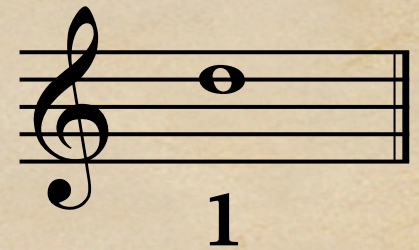
Overall pitch = OK

OPEN 2 1 **12** 23 13 123

or 3

Overtone Series

Pitch Tendencies (partials + valves)



5
4
3
2

5
4
3
2

5
4
3
2

5
4
3
2

5
4
3
2

5
4
3
2

5
4
3
2

1

1

1

1

1

1

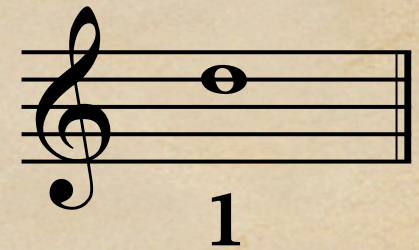
1

OPEN 2 1 12 23 13 123

or 3

Overtone Series

Pitch Tendencies (partials + valves)



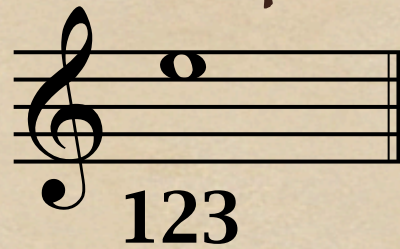
5, 10 = Flat

5th partials = flat
 valves = ok
 overall pitch = flat

OPEN 2 1 12 23 13 123
 or 3

Overtone Series

Pitch Tendencies (partials + valves)



7th Partial Usage

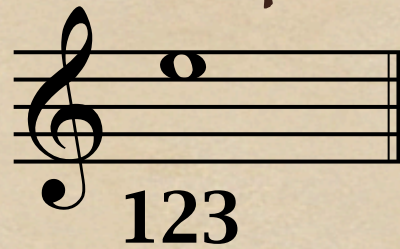
A musical score for trumpet showing overtone series for various fingerings. The score is written on a grand staff (treble and bass clefs). The notes are arranged in a series of chords, each representing a different fingering. A green arrow points to the 7th partial of the 123 fingering.

OPEN 2 1 12 23 13 123

or 3

Overtone Series

Pitch Tendencies (partials + valves)



7th Partial Usage

7, 14 = Very Flat

7th partial = very flat
 123 valve combo = v. sharp

Overall pitch = OK

OPEN 2 1 12 or 3 23 13 123

Overtone Series Part 4

TRUMPET RELATED TO OTHER BRASS

Overtone Series

B.C. Baritone to Trumpet



12 OPEN

Go up Major 9th,
then think trumpet fingerings

Overtone Series

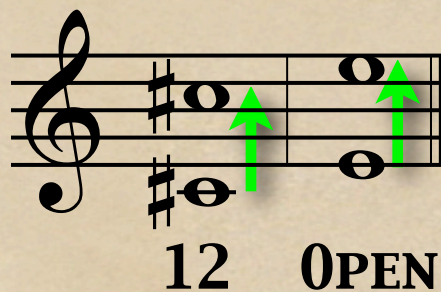
Tuba to Trumpet



Go up two Octaves + Major 2nd,
then think trumpet fingerings

Overtone Series

Horn (F side) to Trumpet



Go up Octave,
then think trumpet fingerings

Overtone Series

Horn (Bb side) to Trumpet



OPEN 12

Go up perfect 5th,
then think trumpet fingerings

Overtone Series

Trombone & Trumpet Relationship

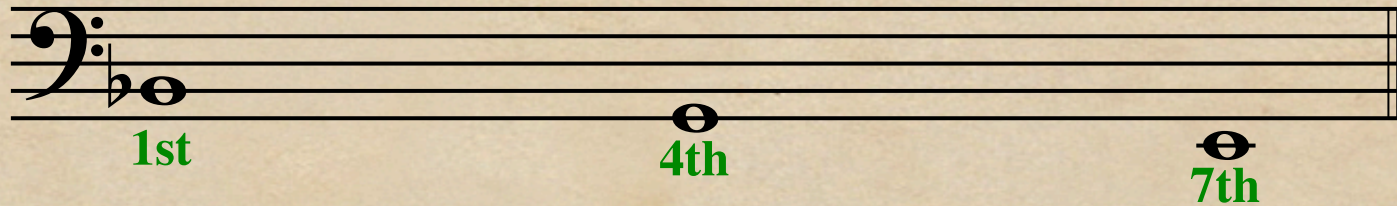
The image displays two musical staves illustrating the overtone series for Trombone and Trumpet. The Trombone staff is in bass clef, and the Trumpet staff is in treble clef. Both staves show a series of seven notes, each with a label below it. The Trombone labels are in green, and the Trumpet labels are in yellow. The notes are connected by a brace on the left side.

Instrument	Label	Notes
Trombone	1st	C2
Trombone	2nd	C3
Trombone	3rd	G2
Trombone	4th	C3
Trombone	5th	F2
Trombone	6th	C3
Trombone	7th	G2
Trumpet	open	C4
Trumpet	2	C5
Trumpet	1	B4
Trumpet	12 or 3	C5
Trumpet	23	B4
Trumpet	13	C5
Trumpet	123	B4

Overtone Series

Trombone Positions (1-4-7)

TROMBONE



Overtone Series

Trombone Positions (1-4-7)

TROMBONE

A musical staff in bass clef with a key signature of one flat (B-flat). The staff contains five notes, each with a green label below it: '1st', '3rd', '4th', '5th', and '7th'. The notes are: 1st (B-flat), 3rd (D-flat), 4th (E-flat), 5th (F), and 7th (G). The notes are positioned on the staff as follows: 1st is on the first space (B-flat), 3rd is on the second space (D-flat), 4th is on the second line (E-flat), 5th is on the third space (F), and 7th is on the fourth space (G). The staff ends with a double bar line.

1st 3rd 4th 5th 7th

Overtone Series

Trombone Positions (1-4-7)

TROMBONE

A musical staff with a bass clef and a key signature of one flat (B-flat). The staff is divided into three sections by vertical lines. The first section contains a whole note on the first line, labeled "1st" below it. The second section contains a whole note on the fourth line, labeled "4th" below it. The third section contains a whole note on the seventh line, labeled "7th" below it.

1st 4th 7th

Overtone Series

Trombone Positions (1-4-7)

TROMBONE

A musical staff in bass clef with a key signature of one flat (B-flat). The staff contains five notes, each with a label below it: 1st, 2nd, 4th, 6th, and 7th. The notes are positioned on the staff as follows: 1st (first line), 2nd (first space), 4th (second space), 6th (third space), and 7th (third line). The labels are in green text.

1st 2nd 4th 6th 7th

The Overtone Series

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