Gain-Stage Arithmetic

Track a peak through a simple series of level changes.

Name _____ Date _____

This clean mono signal starts at -18 dBFS. Each stage is only a gain change: add its signed dB value. No compression, limiting, or mixing occurs. The final fixed-point output must stay below 0 dBFS.

Stage	Gain change	Order
A	+6 dB	First
B	+3 dB	Second
C	-4 dB	Third

Use the model above. Write a brief answer for each item.

1. What is the peak after A?

2. What is the peak after B?

3. What is the final peak after C?

4. What is the net gain change across A, B, and C?

5. How far below 0 dBFS is the final peak?

6. Replace C with +10 dB. What final peak would the arithmetic predict?

7. In that changed chain, reduce gain by 4 dB. What peak is predicted?

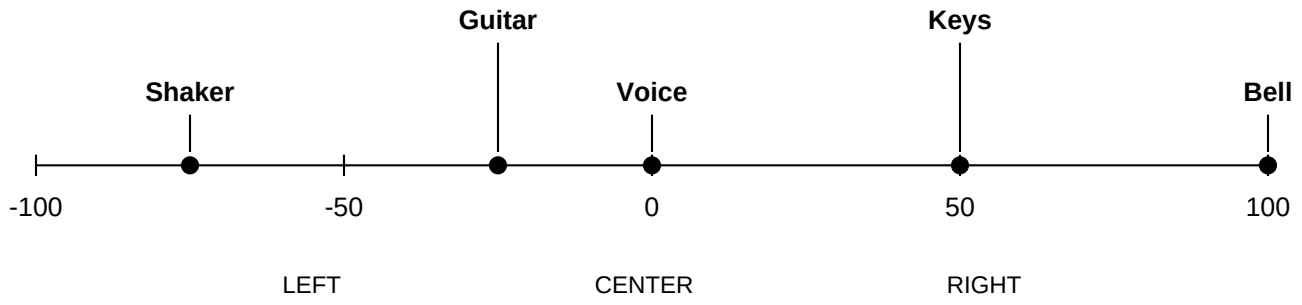
8. Would this arithmetic alone prove that a real recording is free of distortion?

Stereo Pan Position Map

Read relative left/right positions on a stated scale.

Name _____ Date _____

This model pans MONO tracks: -100 = full left, 0 = center, +100 = full right. These values are positions, not percentages of volume. Use the supplied map; actual pan scales differ among apps.



Use the model above. Write a brief answer for each item.

1. Which track is centered?

2. Which track is farthest left?

3. Which track is full right?

4. Which two tracks are left of center?

5. Move Keys from +50 to 0. In which direction does it move?

6. What value mirrors Guitar across center?

7. Does -75 mean the shaker has negative volume?

8. Does this map tell you the exact loudness of each track?

Automation Breakpoint Reader

Read a level curve and calculate its straight-line midpoint.

Name _____ Date _____

The vertical axis is a gain setting in dB, not pitch. Join each pair of points with a straight line in this dB display. A 0 dB setting leaves gain unchanged; it does not mean silence.



Use the model above. Write a brief answer for each item.

1. What is the setting at 0 seconds?

2. What is the setting at 4 seconds?

3. During which whole 4-second span is the setting constant?

4. What is the setting at 12 seconds?

5. What is the setting halfway from 0 to 4 seconds?

6. How much does the setting rise from 8 to 12 seconds?

7. Does the final 0 dB setting mute the track?

8. Does the rising curve mean the notes rise in pitch?

EQ Frequency Decision Lab

Choose a targeted equalizer change from supplied evidence.

Name _____ Date _____

Hz measures frequency; 1 kHz = 1,000 Hz. Use the given listening notes and adjustable bell bands. Negative gain cuts a band; positive gain boosts it. Treat each case separately and listen after changing it.

Case	Listening note	Available band
A	Unwanted boom near 120 Hz	Bell centered at 120 Hz
B	Harshness near 3 kHz	Bell centered at 3 kHz
C	Need more energy near 8 kHz	Bell centered at 8 kHz

Use the model above. Write a brief answer for each item.

1. Write 3 kHz in Hz.

2. Which listed band has the lowest center frequency?

3. For A, first try a small cut or boost at 120 Hz?

4. For B, first try a small cut or boost at 3 kHz?

5. For C, which listed center frequency matches the goal?

6. Is -3 dB a cut or a boost?

7. Does a bell EQ affect only one infinitely narrow frequency?

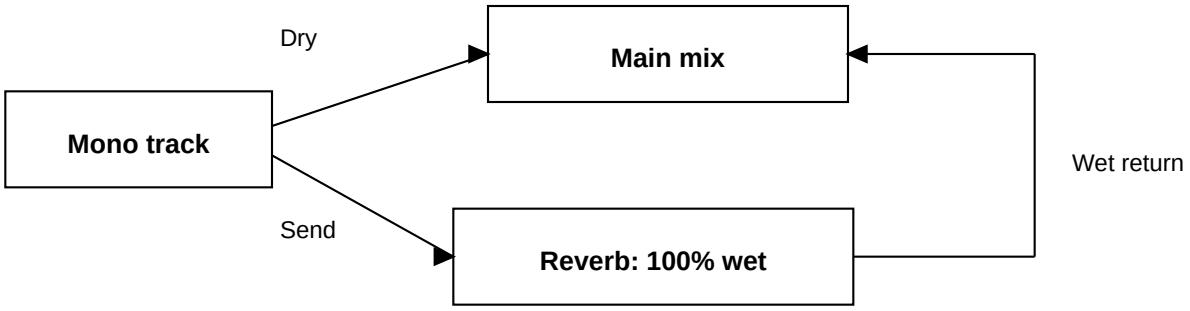
8. Can the same EQ settings be assumed correct for every voice?

Reverb Send Route

Trace dry sound and a shared effect return.

Name _____ Date _____

A post-fader send copies some signal to the reverb bus. The bus effect is set to 100% wet. The dry track and wet return both reach the main mix. No other effect paths exist in this model.



Use the model above. Write a brief answer for each item.

1. Which path carries the direct dry signal to the mix?

2. Which bus creates the wet signal?

3. Why is this shared reverb effect set to 100% wet?

4. Mute only the wet return. Which sound remains?

5. Turn this track's send down. What contribution becomes smaller?

6. Does the send normally remove the copied sound from the dry path?

7. Why might the sound continue after the dry note ends?

8. Is the effect path series-only or parallel in this diagram?

Project Asset Recovery

Reconnect missing audio without replacing the intended take.

Name _____ Date _____

A project stores edit instructions and references external audio. Moving a file can break its reference. Relink to the correct existing source. A matching filename alone does not prove it is the same take.

Project expects	What is available
Audio/voice_take2.wav	Moved to Sources/voice_take2.wav; same file
Audio/drums.wav	Audio/drums.wav; unchanged
Not required for this edit	Audio/voice_take1.wav; older, different performance

Use the model above. Write a brief answer for each item.

1. Which expected source has moved?

2. What new path should it be relinked to?

3. Which source is already at its expected path?

4. Should take1 replace take2 just because both contain speech?

5. Does relinking the correct source require rerecording it?

6. For transfer, keep only the project or the project plus needed sources?

7. How can you test the transferred package?

8. A file with the same name is offered. What should you verify before linking?

Export Specification Check

Compare candidate audio files with an exact assignment brief.

Name _____ Date _____

Required: WAV, 48 kHz, 24-bit integer PCM, stereo, 30 seconds including the full ending. The table describes actual exported files, not project settings. Imagine these files are available to audition; no audio is supplied.

File	Format / rate	Depth / channels	Duration
A	WAV / 48 kHz	24-bit / stereo	30 s
B	MP3 / 48 kHz	Lossy / stereo	30 s
C	WAV / 44.1 kHz	16-bit / mono	30 s
D	WAV / 48 kHz	24-bit / stereo	28 s

Use the model above. Write a brief answer for each item.

1. Which file matches all listed technical requirements?

2. Which requirement does B fail?

3. Which three listed settings must change for C?

4. Which listed requirement does D fail?

5. Does A's table entry prove that its ending is audibly complete?

6. Would renaming B from .mp3 to .wav perform the needed conversion?

7. Should you check the actual export or only the saved project settings?

8. A 30-second file ends with an abruptly cut word. Is it ready?

Gain-Stage Arithmetic

Track a peak through a simple series of level changes.

Name _____ Date _____

This clean mono signal starts at -18 dBFS. Each stage is only a gain change: add its signed dB value. No compression, limiting, or mixing occurs. The final fixed-point output must stay below 0 dBFS.

Stage	Gain change	Order
A	+6 dB	First
B	+3 dB	Second
C	-4 dB	Third

Use the model above. Write a brief answer for each item.

1. What is the peak after A?

-12 dBFS

2. What is the peak after B?

-9 dBFS

3. What is the final peak after C?

-13 dBFS

4. What is the net gain change across A, B, and C?

+5 dB

5. How far below 0 dBFS is the final peak?

13 dB

6. Replace C with +10 dB. What final peak would the arithmetic predict?

+1 dBFS: above the stated output limit.

7. In that changed chain, reduce gain by 4 dB. What peak is predicted?

-3 dBFS

8. Would this arithmetic alone prove that a real recording is free of distortion?

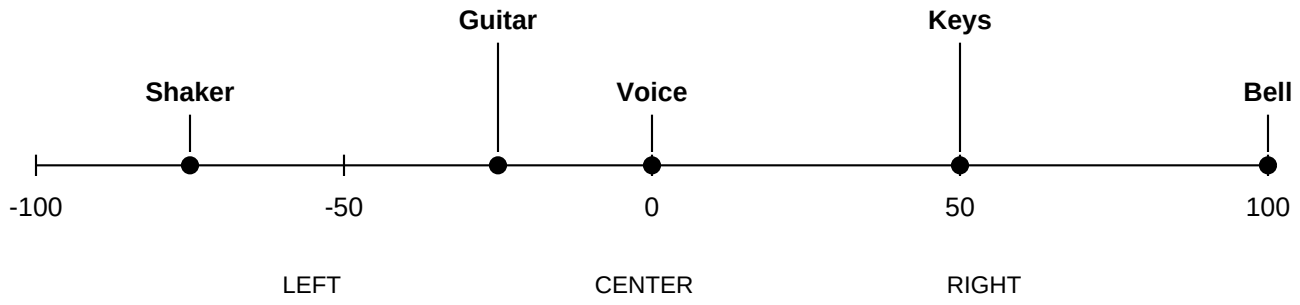
No. Check the actual signal and listen for distortion.

Stereo Pan Position Map

Read relative left/right positions on a stated scale.

Name _____ Date _____

This model pans MONO tracks: -100 = full left, 0 = center, +100 = full right. These values are positions, not percentages of volume. Use the supplied map; actual pan scales differ among apps.



Use the model above. Write a brief answer for each item.

1. Which track is centered?

Voice

2. Which track is farthest left?

Shaker

3. Which track is full right?

Bell

4. Which two tracks are left of center?

Shaker and Guitar

5. Move Keys from +50 to 0. In which direction does it move?

Toward the left, to center.

6. What value mirrors Guitar across center?

+25

7. Does -75 mean the shaker has negative volume?

No. The minus sign indicates a left position.

8. Does this map tell you the exact loudness of each track?

No. It specifies pan positions only.

Automation Breakpoint Reader

Read a level curve and calculate its straight-line midpoint.

Name _____ Date _____

The vertical axis is a gain setting in dB, not pitch. Join each pair of points with a straight line in this dB display. A 0 dB setting leaves gain unchanged; it does not mean silence.



Use the model above. Write a brief answer for each item.

1. What is the setting at 0 seconds?

-12 dB

2. What is the setting at 4 seconds?

-6 dB

3. During which whole 4-second span is the setting constant?

4 to 8 seconds

4. What is the setting at 12 seconds?

0 dB

5. What is the setting halfway from 0 to 4 seconds?

-9 dB at 2 seconds.

6. How much does the setting rise from 8 to 12 seconds?

6 dB

7. Does the final 0 dB setting mute the track?

No. It means no gain change.

8. Does the rising curve mean the notes rise in pitch?

No. The curve controls gain.

EQ Frequency Decision Lab

Choose a targeted equalizer change from supplied evidence.

Name _____ Date _____

Hz measures frequency; 1 kHz = 1,000 Hz. Use the given listening notes and adjustable bell bands. Negative gain cuts a band; positive gain boosts it. Treat each case separately and listen after changing it.

Case	Listening note	Available band
A	Unwanted boom near 120 Hz	Bell centered at 120 Hz
B	Harshness near 3 kHz	Bell centered at 3 kHz
C	Need more energy near 8 kHz	Bell centered at 8 kHz

Use the model above. Write a brief answer for each item.

1. Write 3 kHz in Hz.

3,000 Hz

2. Which listed band has the lowest center frequency?

120 Hz

3. For A, first try a small cut or boost at 120 Hz?

A small cut.

4. For B, first try a small cut or boost at 3 kHz?

A small cut.

5. For C, which listed center frequency matches the goal?

8 kHz (8,000 Hz)

6. Is -3 dB a cut or a boost?

A cut.

7. Does a bell EQ affect only one infinitely narrow frequency?

No. It affects a band around its center.

8. Can the same EQ settings be assumed correct for every voice?

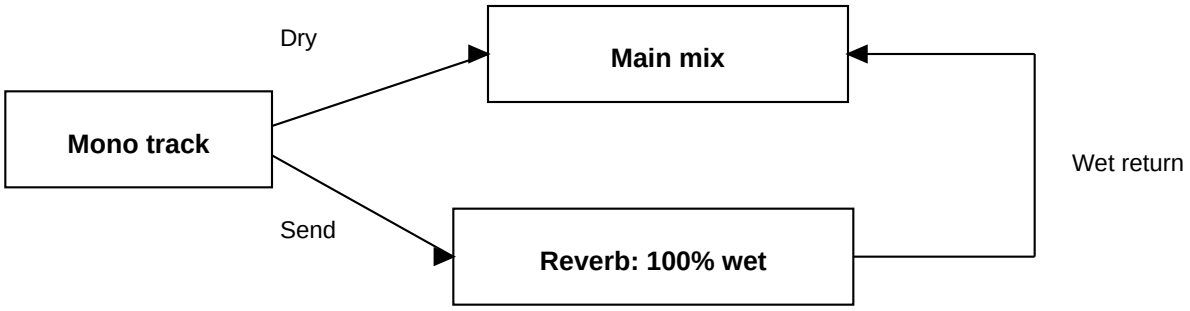
No. Listen and decide for the actual recording.

Reverb Send Route

Trace dry sound and a shared effect return.

Name _____ Date _____

A post-fader send copies some signal to the reverb bus. The bus effect is set to 100% wet. The dry track and wet return both reach the main mix. No other effect paths exist in this model.



Use the model above. Write a brief answer for each item.

1. Which path carries the direct dry signal to the mix?

Track to main mix.

2. Which bus creates the wet signal?

The reverb bus.

3. Why is this shared reverb effect set to 100% wet?

The original dry sound already has its own path.

4. Mute only the wet return. Which sound remains?

The dry track.

5. Turn this track's send down. What contribution becomes smaller?

Its signal sent to the reverb bus.

6. Does the send normally remove the copied sound from the dry path?

No. It creates a parallel copy.

7. Why might the sound continue after the dry note ends?

The reverb tail can continue.

8. Is the effect path series-only or parallel in this diagram?

Parallel: dry and wet routes meet at the mix.

Project Asset Recovery

Reconnect missing audio without replacing the intended take.

Name _____ Date _____

A project stores edit instructions and references external audio. Moving a file can break its reference. Relink to the correct existing source. A matching filename alone does not prove it is the same take.

Project expects	What is available
Audio/voice_take2.wav	Moved to Sources/voice_take2.wav; same file
Audio/drums.wav	Audio/drums.wav; unchanged
Not required for this edit	Audio/voice_take1.wav; older, different performance

Use the model above. Write a brief answer for each item.

1. Which expected source has moved?

Audio/voice_take2.wav

2. What new path should it be relinked to?

Sources/voice_take2.wav

3. Which source is already at its expected path?

Audio/drums.wav

4. Should take1 replace take2 just because both contain speech?

No. They are different performances.

5. Does relinking the correct source require rerecording it?

No. The existing source is available.

6. For transfer, keep only the project or the project plus needed sources?

The project plus all needed source files.

7. How can you test the transferred package?

Open the copied project and check that every source loads and plays.

8. A file with the same name is offered. What should you verify before linking?

That it is the intended take, using content and available file details.

Export Specification Check

Compare candidate audio files with an exact assignment brief.

Name _____ Date _____

Required: WAV, 48 kHz, 24-bit integer PCM, stereo, 30 seconds including the full ending. The table describes actual exported files, not project settings. Imagine these files are available to audition; no audio is supplied.

File	Format / rate	Depth / channels	Duration
A	WAV / 48 kHz	24-bit / stereo	30 s
B	MP3 / 48 kHz	Lossy / stereo	30 s
C	WAV / 44.1 kHz	16-bit / mono	30 s
D	WAV / 48 kHz	24-bit / stereo	28 s

Use the model above. Write a brief answer for each item.

1. Which file matches all listed technical requirements?

A

2. Which requirement does B fail?

WAV / integer PCM format: B is MP3.

3. Which three listed settings must change for C?

Sample rate to 48 kHz, depth to 24-bit, channels to stereo.

4. Which listed requirement does D fail?

Duration: 28 seconds instead of 30.

5. Does A's table entry prove that its ending is audibly complete?

No. Open it and listen to the ending.

6. Would renaming B from .mp3 to .wav perform the needed conversion?

No. Re-export in the required format.

7. Should you check the actual export or only the saved project settings?

The actual exported file.

8. A 30-second file ends with an abruptly cut word. Is it ready?

No. Repair the ending and export and check again.