Sound activity

I used questions 1-8 with the sound activity and the rest on the next day.
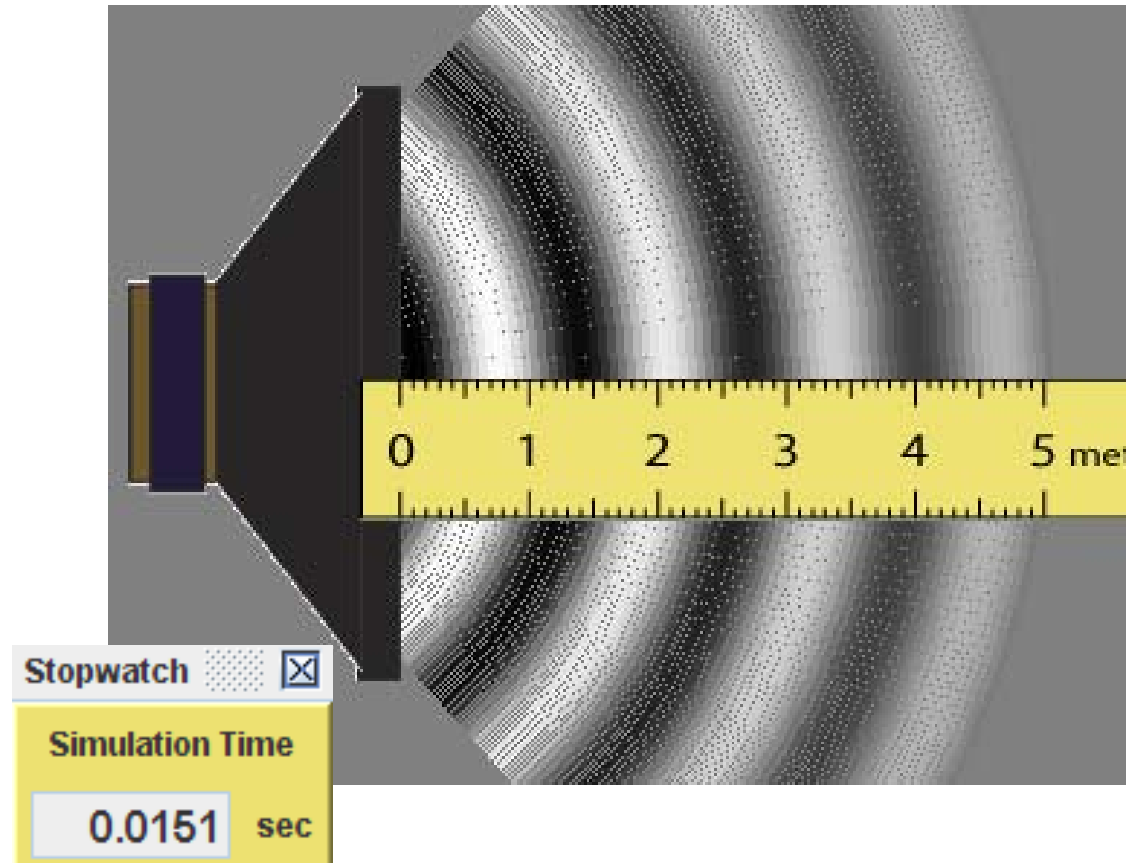
1. A student started the speaker by clicking on the stopwatch. How many sound waves are there is this trial?
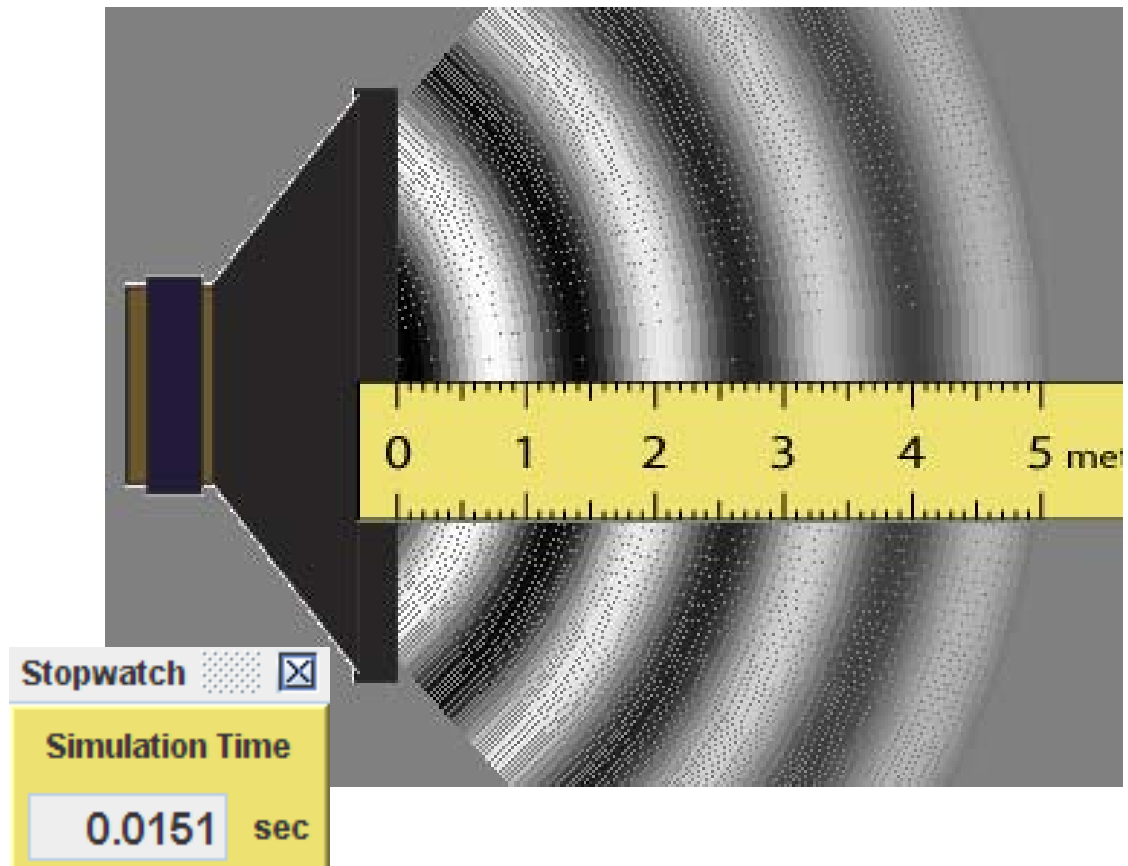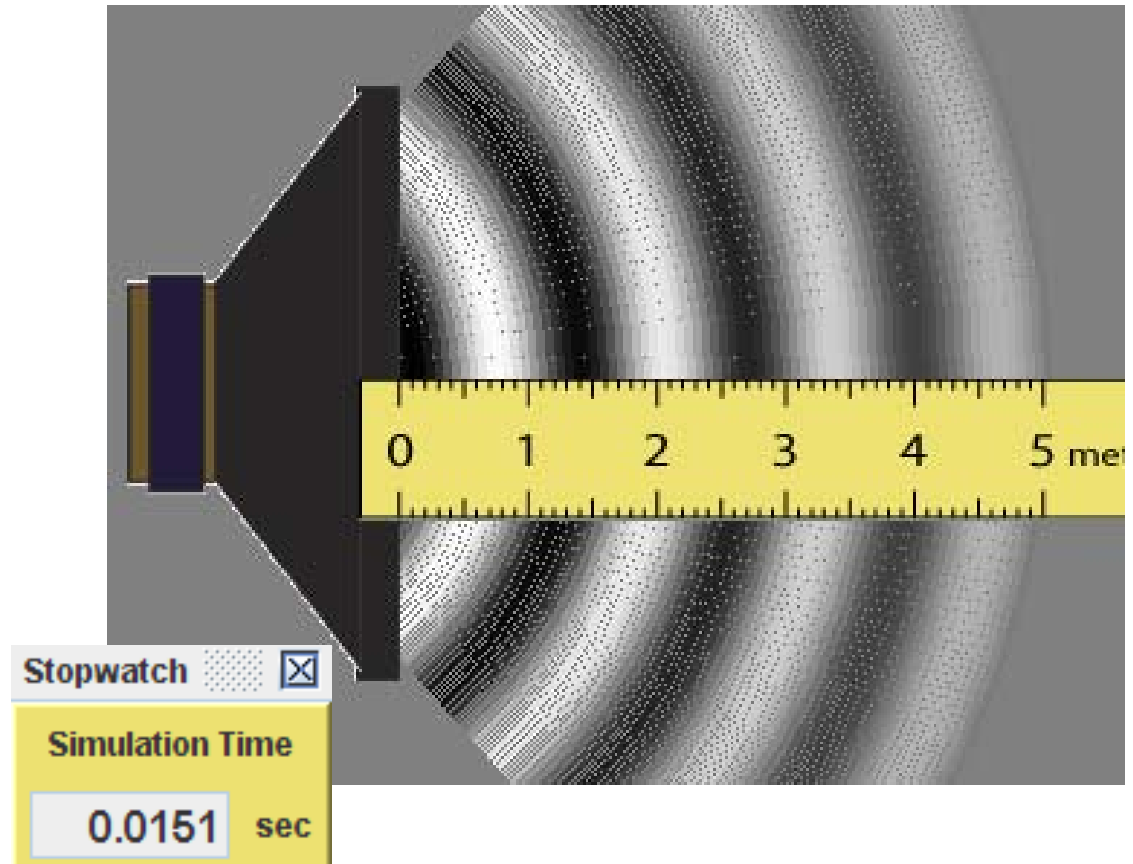
A. 3

B. 5

C. 4

D. 8

Stopwatch

Simulation Time

0.0151 sec

2. What is the speed of the sound waves shown here?
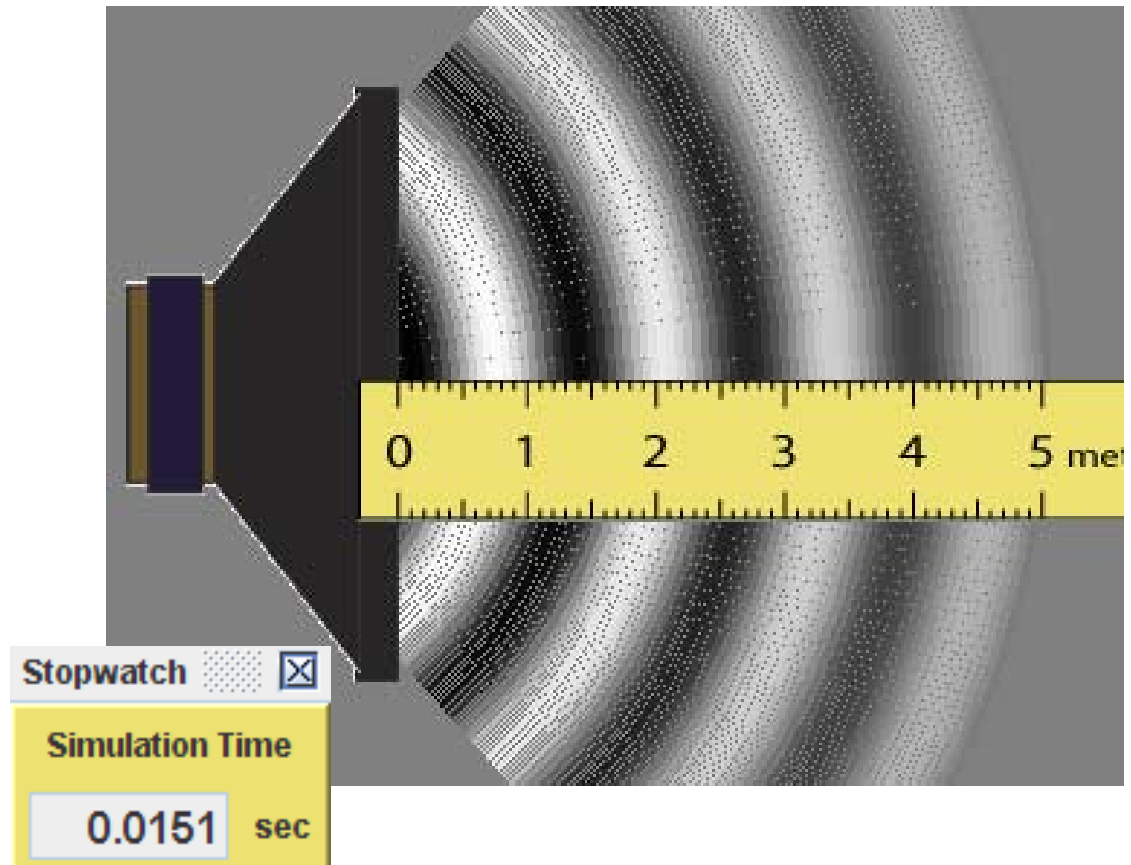
A. 300 m/s

B. 330 m/s

C. 0.0030 m/s

D. 66 m/s

3. What is the frequency of the sound waves shown here?
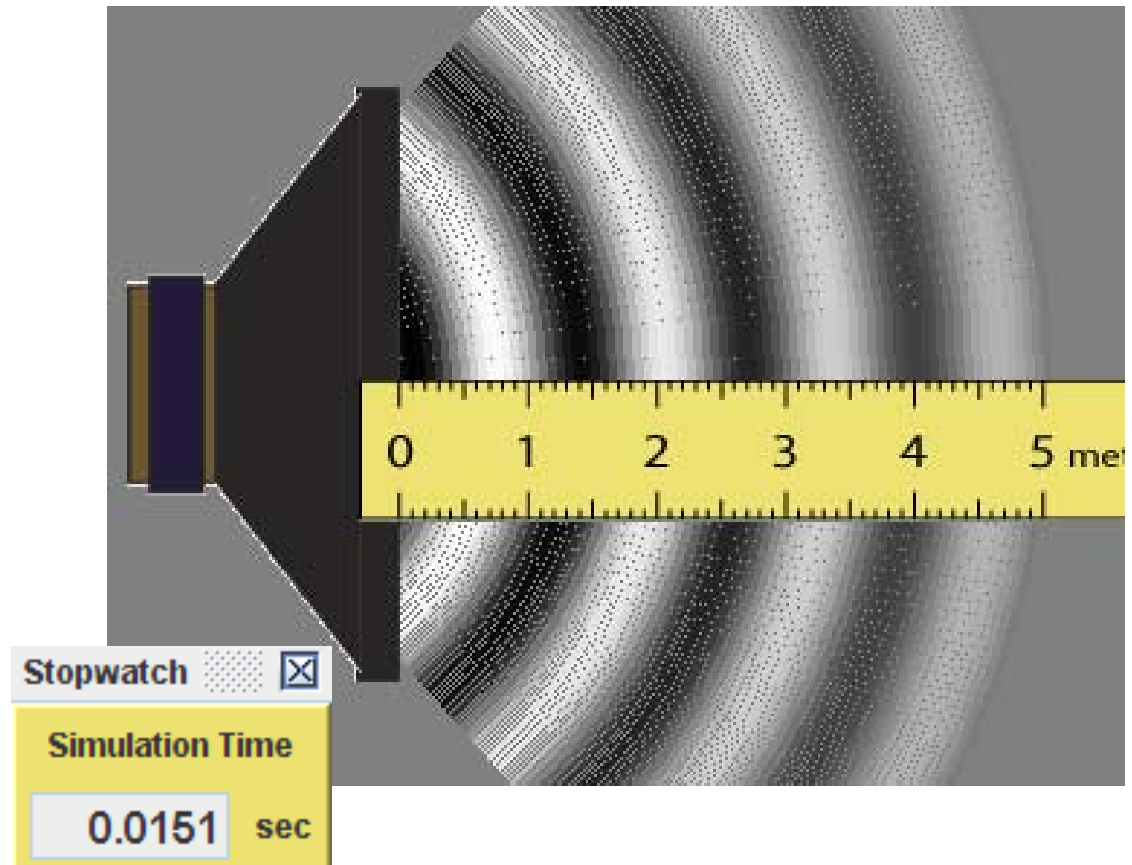
A. 0.0037 hz

B. 66 hz

C. 260 hz

D. 300 hz

E. 330 hz

4. What is the period of the sound waves shown here?

A. 0.0151 s

B. 0.0037 s

C. 260 s

D. 300 s

E. 330 s
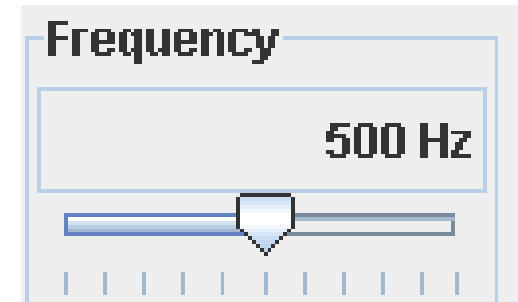
5. What is the wavelength of the sound waves shown here?
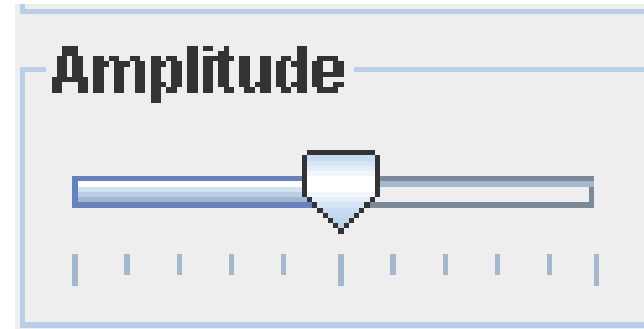
A. 5 m

B. 1.3 m

C. 1 m

D. 0.71 m

E. 300 m

6. If your lab partner moved the frequency slider to the left so that it changed from 500 to 250 the period would be

Frequency

500 Hz

A. twice as big
B. 1/2 as big
C. Stays the same
D. 1/4 times as big
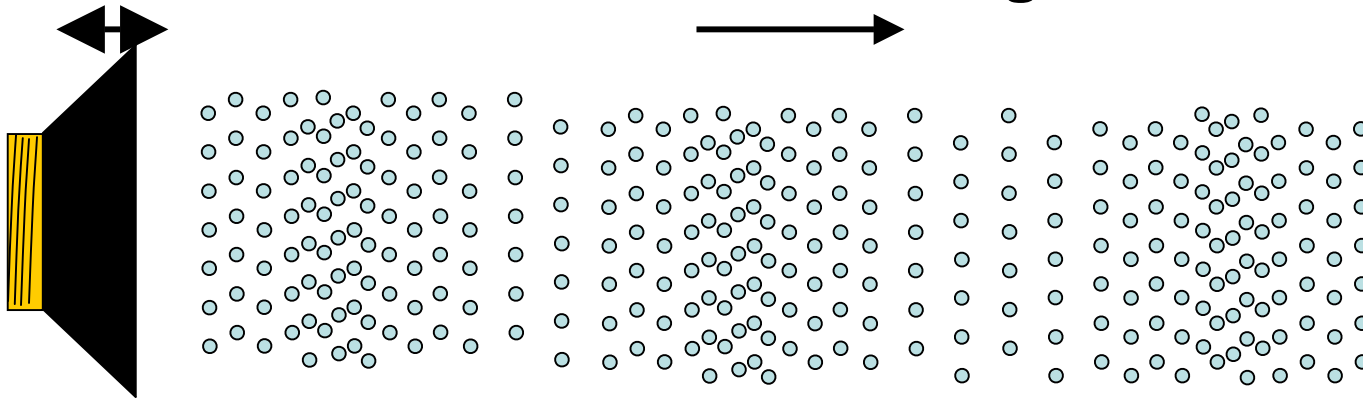E. Not enough information to decide

7. If you moved the slider to the far right, doubling the amplitude, the period would be…

Amplitude

A. twice as big
B. 1/2 as big
C. Stays the same
D. 1/4 times as big
E. Not enough information to decide

Sound waves traveling out

8. If the speaker vibrates back and forth at 200 Hz how much time passes between each time it produces a maximum in pressure?

a. 0.2 seconds
b. 0.200 seconds
c. 0.005 seconds
d. 0.02 seconds
e. 0.05 seconds

9.A speaker is playing a constant note. What happens to the sound when you
1) put a solid, thick glass jar over it and
2) pump the air out from the jar.

A) 1 => hardly any difference
   2 => hardly any difference

B) 1=> hardly any difference
   2 => much quieter
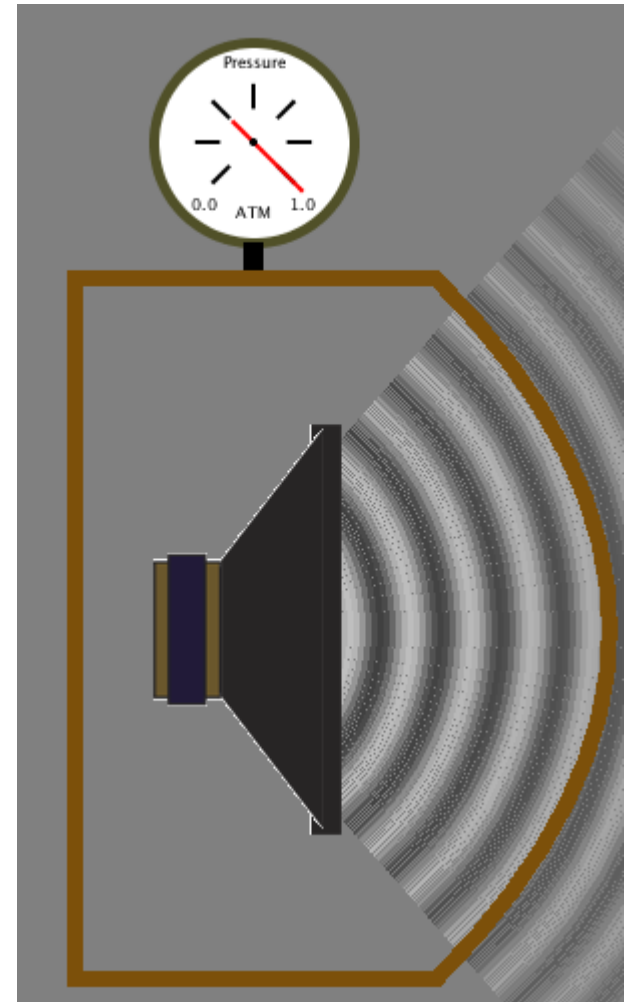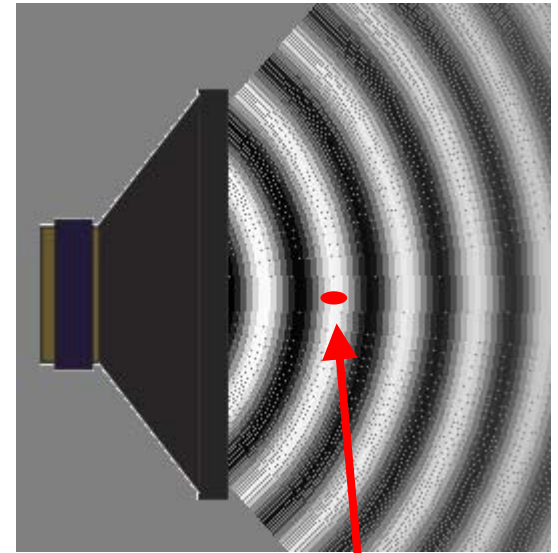
C) 1=> noticeably quieter
   2 => hardly any MORE quiet

D) 1=> noticeably quieter
   2=> much quieter still (near silence)

E) None of these/something else/??

10. If you could put a dust particle in front of the speaker. Which choice below shows the *motion* of the dust particle?
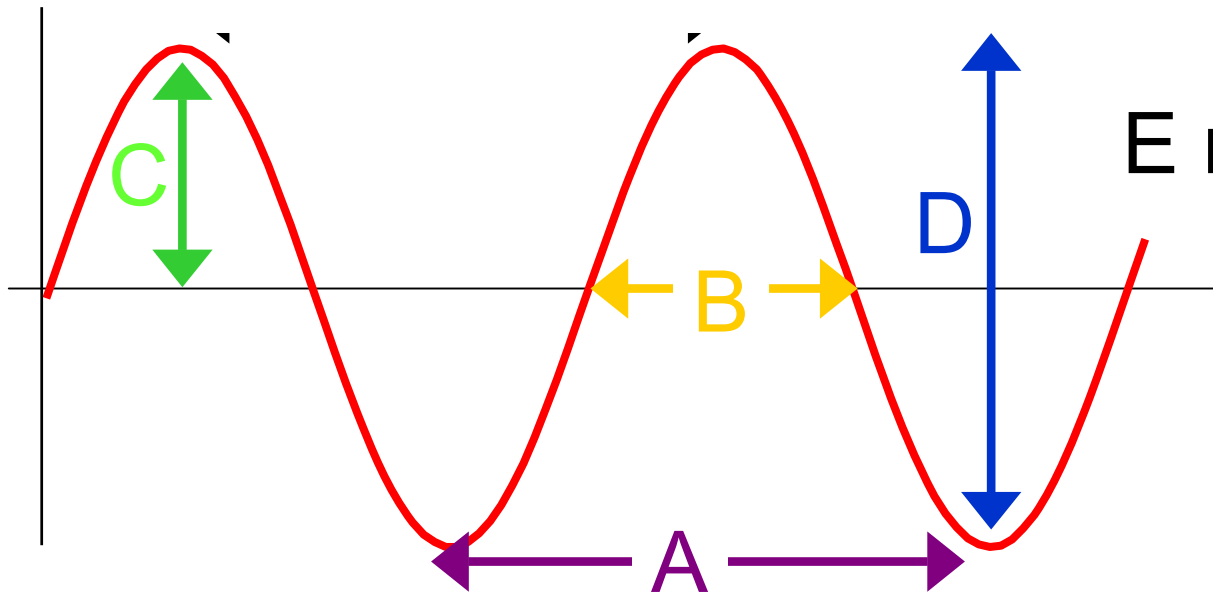

dust

A) ↕ (up and down)

B) → (steadily to the right)

C) ↔ (left and right)

D) (no motion)

E) ↻ (circular path)

11. The picture shows "displacement as a function of location along a string"

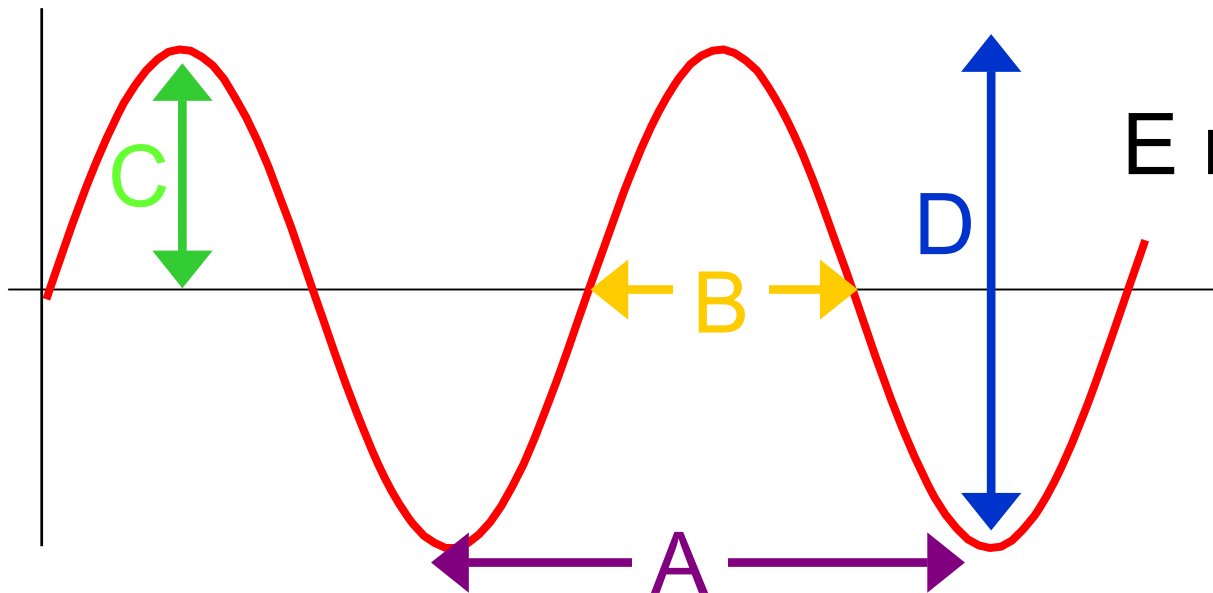## What is the wavelength ("λ")?

E none of these

Remember X axis is **position** not time

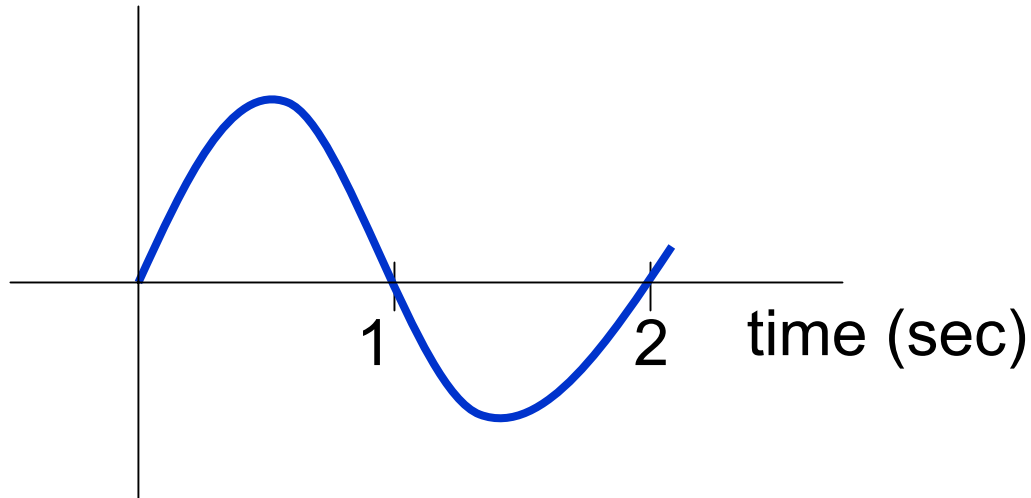# 12. The picture shows "displacement as a function of location along a string"

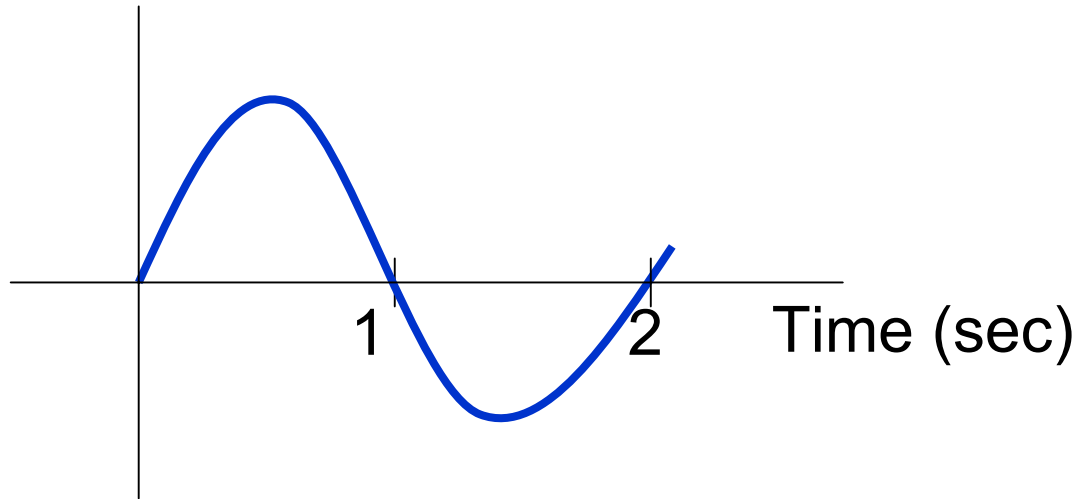## What is the amplitude?

E none of these

Remember X axis is **position** not time

13. Looking at the following waveform, what is the period? assume it repeats itself over and over

A. 1 sec
B. 2 sec
C. 1 m/s
D. 2 m/s
E. Not enough information

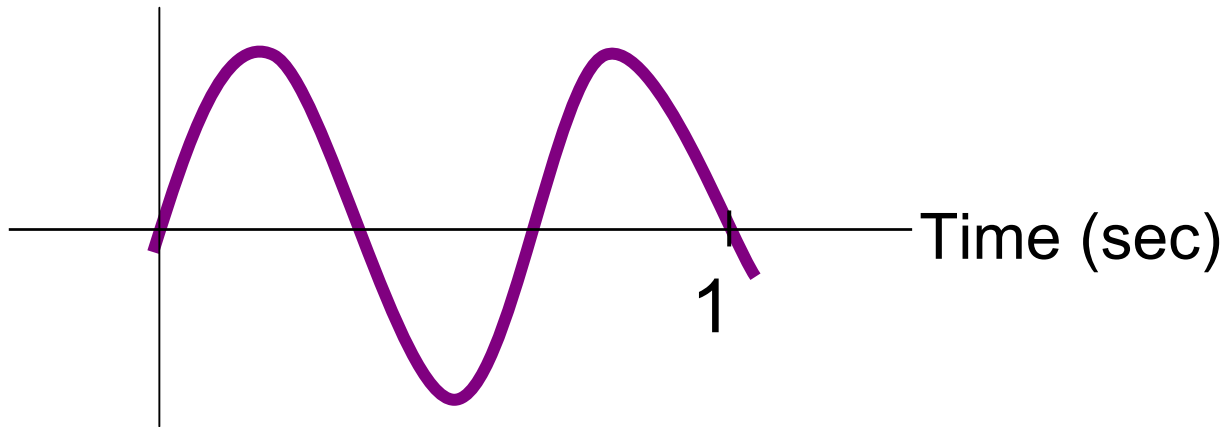# 14 Looking at that same wave, what is its speed?

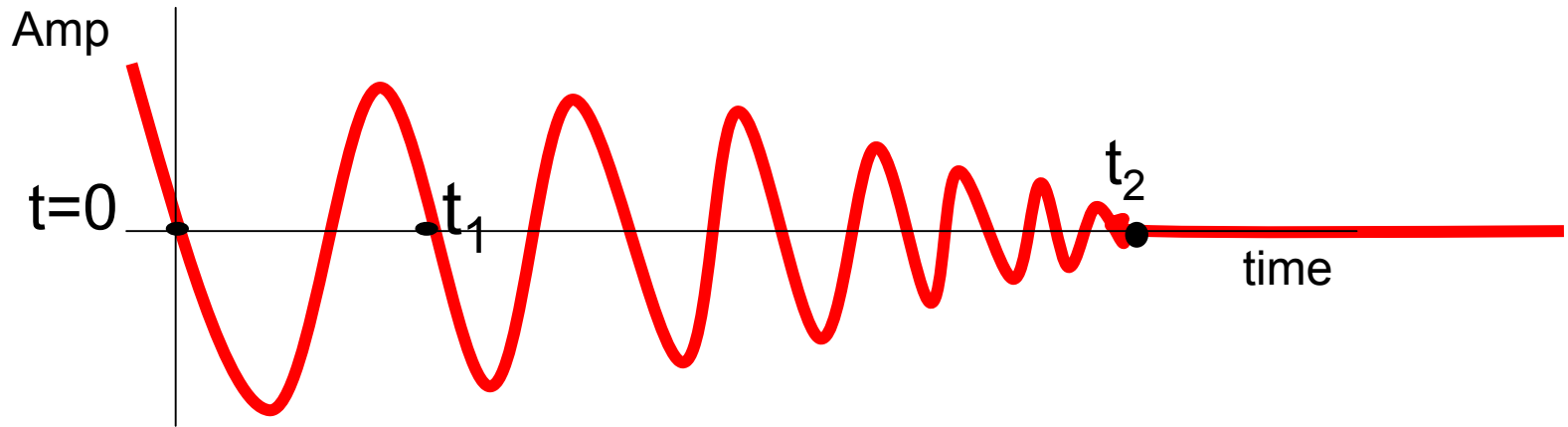A. 1/2 m/s
B. 2 m/s
C. 5 m/s
D. 20 m/s
E. Not enough information

15 The wavelength, λ, is 10 m. What is the speed of this wave?

Time (sec)

1

A) 1 m/s
B) just under 7 m/s
C) 10 m/s
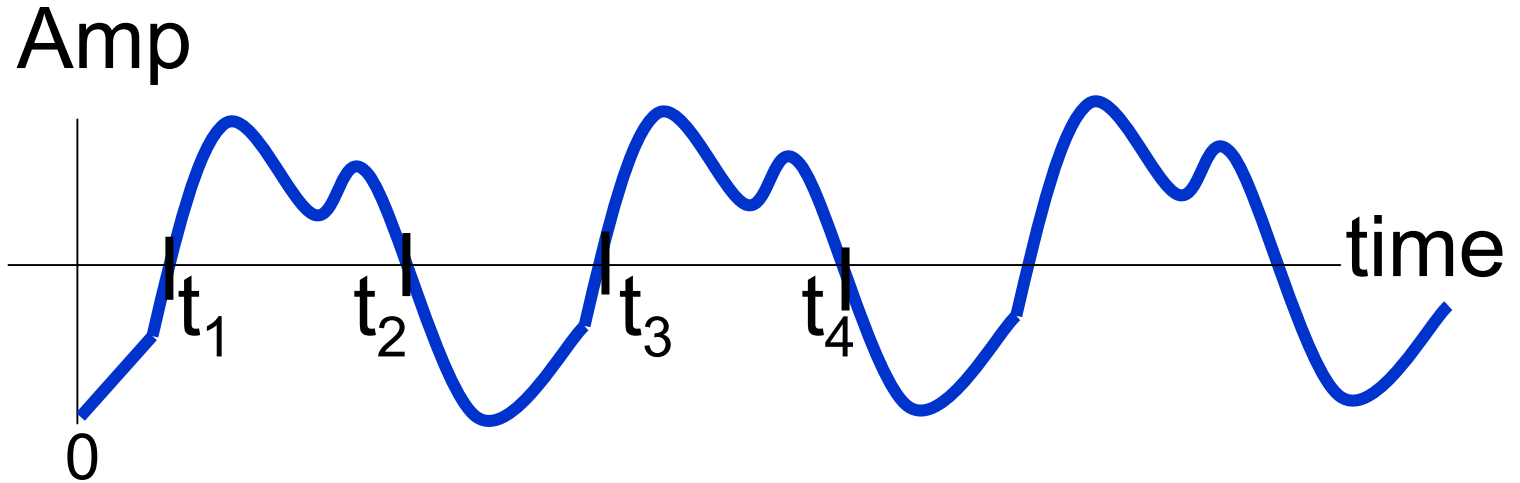D) 15 m/s
E) None of the above/not enough info/not sure

16 What is the period of this wave?

a) t_1
b) t_2
c) Not at all defined
d) Not well defined, but t_1 is the best answer
e) Not well defined, but t_2 is the best answer

17 What is the period of this wave?

a) t_1
b) t_2
c) $t_2 - t_1$
d) $t_3 - t_1$
e) None of the above

18 Which one of the following is most likely to be *impossible*?

A. Transverse waves in a gas

B. Longitudinal waves in a gas

C. Transverse waves in a solid

D. Longitudinal waves in a solid

E. They all seem perfectly possible

19. To increase the volume of a tone at 400 Hz heard by the listener, the speaker must oscillate back and forth more times each second than it does to produce the tone with lower volume.
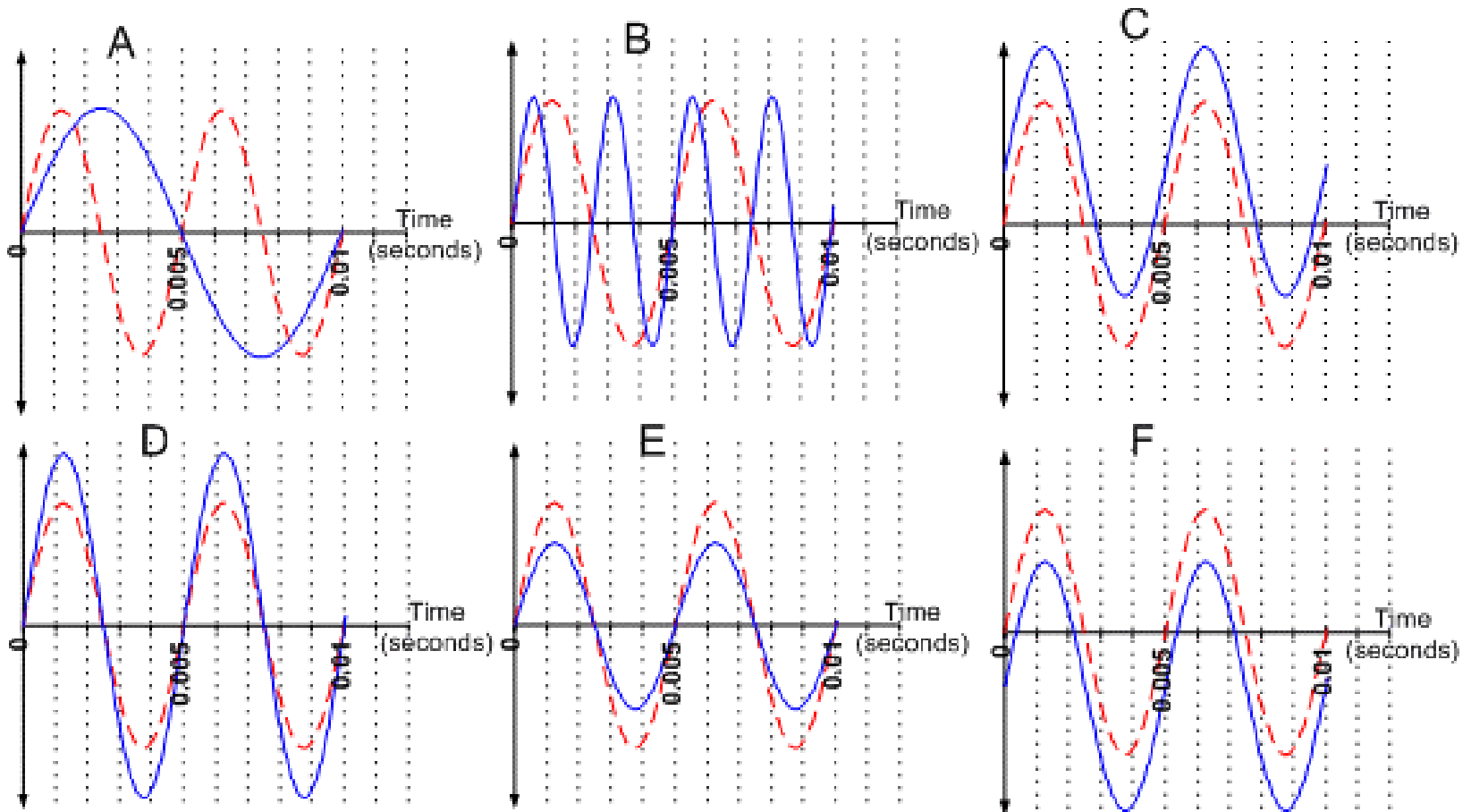
A. True   B. False

In the following graph we have plotted the pressure measured at the listener's ear as a function of time for a 200 Hz tone generated by the speaker.
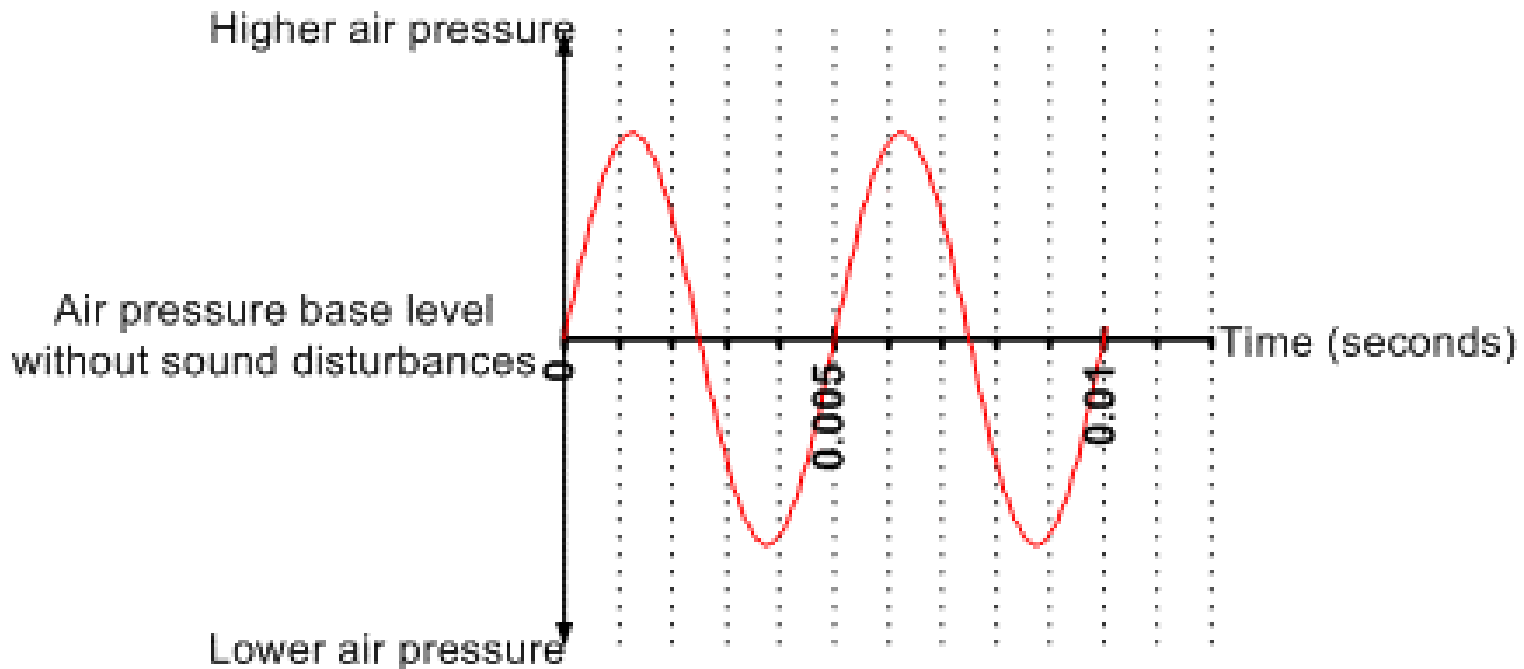
20. Which of the blue solid curves could represent the curve for a lower pitch ?
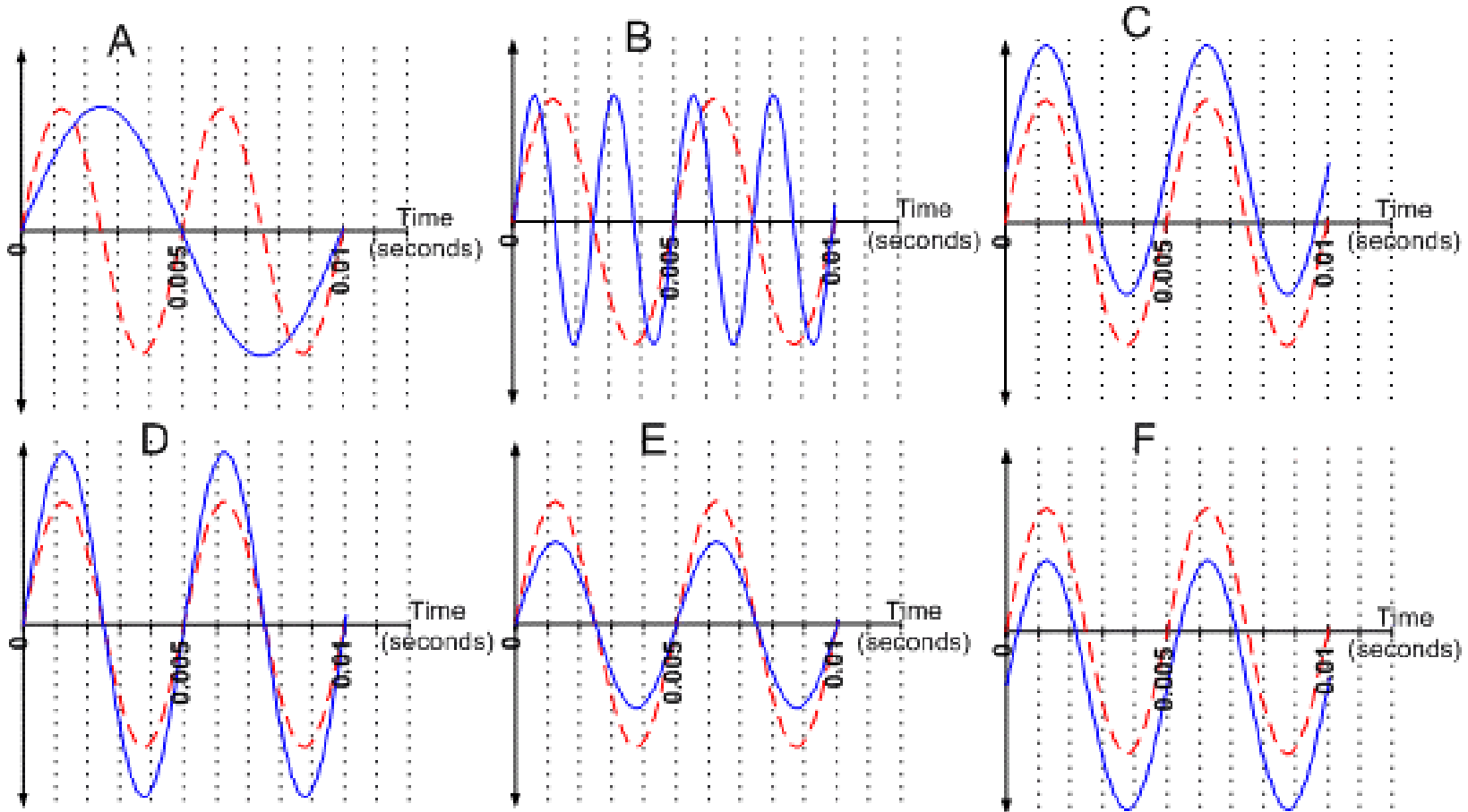
21. Which of the blue curves could represent the curve for a louder volume?

22. Which of the blue curves could represent the curve if the speaker settings are unchanged, but the listener is further?