1. Elsa’s tuning fork has a frequency of 522 Hz. When Anna’s tuning fork is struck, beat interference patterns occur with a beat frequency of 7 Hz. What is the lowest and highest possible **frequency** for Anna’s second fork?
2. Jasmine plays two tuning forks are simultaneously. The first tuning fork has a frequency of 1080 Hz and the second has a frequency of 1075 Hz. Determine the **beat frequency** for Jasmine’s tuning forks.
3. A standing wave is produced when Belle bows her violin’s string. If the length of the string is 1.5 m, the note being played is the 2nd overtone, and the frequency is 60 Hz, what is the **speed** of the wave?
4. Ariel plays a closed organ pipe of length 0.750 m when the speed of sound in air is 341 $^{m}/\_{s }$. What is the **fundamental frequency** of the pipe?
5. Merida holds a 445 Hz tuning fork above a closed pipe.
6. What is the **wavelength** for this frequency if the air temperature is 18.0°C?
7. Find the **length** of the resonating air column if this is the fundamental frequency.
8. The frequency of a tuning fork is unknown. Wendy uses a closed air column at 27.0 °C and finds the first resonance when the column is 10.1 cm long. What is the **frequency** of the tuning fork?
9. Tiana’s soprano saxophone acts as an open pipe. If all keys are closed, it is approximately 65 cm long. Using 343 $^{m}/\_{s }$ as the speed of sound, find the **lowest frequency** that can be played on this instrument.
10. Aurora’s bugle can be thought of as an open pipe. If a bugle were straightened out, it would be 2.65 m long.
11. If the speed of sound is 343 $^{m}/\_{s }$, find the **lowest frequency** that is resonant in a bugle.
12. Find the next two higher **resonant frequencies** in the bugle.
13. Elsa’s tuning fork has a frequency of 522 Hz. When Anna’s tuning fork is struck, beat interference patterns occur with a beat frequency of 7 Hz. What is the lowest and highest possible **frequency** for Anna’s second fork?
14. Jasmine plays two tuning forks are simultaneously. The first tuning fork has a frequency of 1080 Hz and the second has a frequency of 1075 Hz. Determine the **beat frequency** for Jasmine’s tuning forks.
15. A standing wave is produced when Belle bows her violin’s string. If the length of the string is 1.5 m, the note being played is the 2nd overtone, and the frequency is 60 Hz, what is the **speed** of the wave?
16. Ariel plays a closed organ pipe of length 0.750 m when the speed of sound in air is 341 $^{m}/\_{s }$. What is the **fundamental frequency** of the pipe?
17. Merida holds a 445 Hz tuning fork above a closed pipe.
18. What is the **wavelength** for this frequency if the air temperature is 18.0°C?
19. Find the **length** of the resonating air column if this is the fundamental frequency.
20. The frequency of a tuning fork is unknown. Wendy uses a closed air column at 27.0 °C and finds the first resonance when the column is 10.1 cm long. What is the **frequency** of the tuning fork?
21. Tiana’s soprano saxophone acts as an open pipe. If all keys are closed, it is approximately 65 cm long. Using 343 $^{m}/\_{s }$ as the speed of sound, find the **lowest frequency** that can be played on this instrument.
22. Aurora’s bugle can be thought of as an open pipe. If a bugle were straightened out, it would be 2.65 m long.
23. If the speed of sound is 343 $^{m}/\_{s }$, find the **lowest frequency** that is resonant in a bugle.
24. Find the next two higher **resonant frequencies** in the bugle.