

Name: _____

Period: _____

- | | |
|-------------------------------|---|
| 1. Transverse wave A | A. A wave where the oscillation is perpendicular to the direction of motion. |
| 2. Longitudinal wave D | B. The bottom of a wave. |
| 3. Crest C | C. The top of a wave. |
| 4. Trough B | D. A wave where the oscillation is in the same direction (parallel) as the motion. |
| 5. Wavelength E | E. The length of one wave cycle. |

Wave Motion, Yes or No?	
FM radio: <u>yes</u>	Music: <u>yes</u>
A car going 70 m/s: <u>No</u>	A bulldozer: <u>no</u>
Clock pendulum: <u>No</u>	Earthquakes: <u>yes</u>
Ocean waves: <u>yes</u>	Cellphones: <u>yes</u>

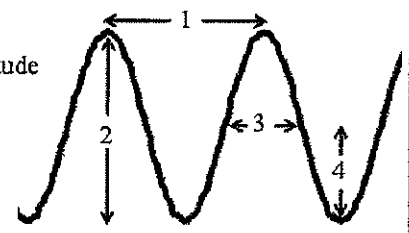
f is the variable for frequency, measured in Hz.
 λ is the variable for wavelength, measured in m.
 T is the variable for period, measured in sec.
 v is the variable for speed, measured in m/s.

- Transverse or Longitudinal Waves?
- I You move the slinky left and right.
 - L You push the slinky forward.
 - L Sound, if a radio's speaker moves in and out.
 - both Earthquakes?
 - T Vibrates up and down and moves to the right.

A wave is 8 meters long and has a frequency of 3 Hz. Find speed.
 $v = f\lambda$
 $v = 3(8) = 24 \text{ m/s}$

Which number shows:

- 2 Double the amplitude
- 4 Amplitude
- 1 Wavelength
- 3 Half λ



A wave has a wavelength of 2 meters and a frequency of 1.5 Hz. Calculate the wave's speed.
 $v = f\lambda = 1.5(2) = 3 \text{ m/s}$

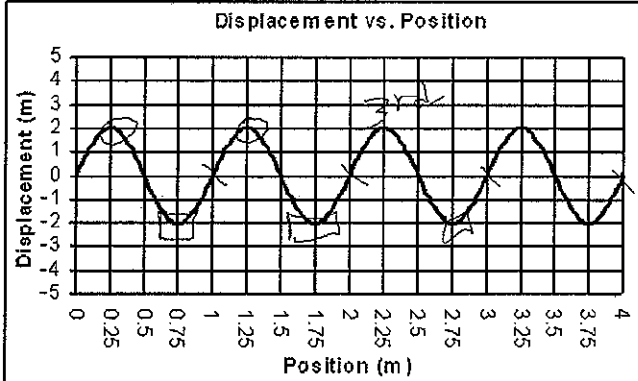
- Faster or slower wave speed?
- F The medium gets colder.
 - N/A The amplitude gets bigger.
 - S A slinky gets looser.
 - S The medium turns from solid to liquid.
 - n/a The wavelength gets shorter.

If a second wave with a frequency of 18 Hz enters the same medium, what will its speed be?
3 m/s speed stays the same.

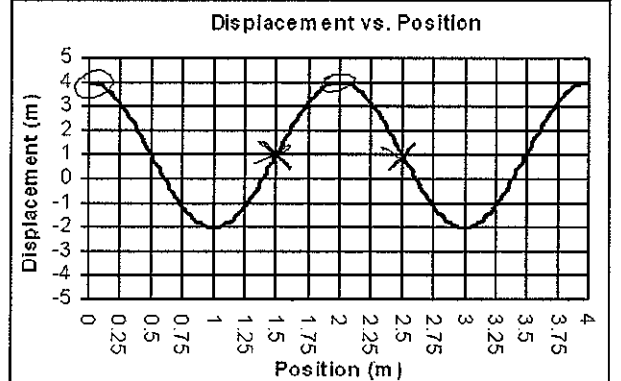
Wave 1: $f = 25 \text{ Hz}$; Wave 2: $f = 40 \text{ Hz}$. Which one will be faster in water?
same, but wave 2 will have shorter λ .

Calculate the second wave's wavelength.
 $v = f\lambda$ $\lambda = \frac{3}{18} = \frac{1}{6} = .167 \text{ m}$
 $3 = 18(\lambda)$

So, as f increases in the same medium, λ decreases.
 higher f, shorter λ .



Mark 1 cycle of the wave.
 Starting at 0.75 m, where does the 2nd cycle end: 2.75m
 Number of complete cycles: 4 Mark the third crest.
 Wavelength: 1m Amplitude: 2m
 If $f = 4 \text{ Hz}$, find speed: $v = f\lambda = 4(1) = 4 \text{ m/s}$



Mark 1 cycle of the harmonic motion.
 Starting at 1.5 secs, when does half a cycle end: 2.5m
 Number of complete cycles: 2 Number of troughs: 2
 Wavelength: 2m Amplitude: 3m
 If $f = 50 \text{ Hz}$, find speed: $v = f\lambda = 50(2) = 100 \text{ m/s}$