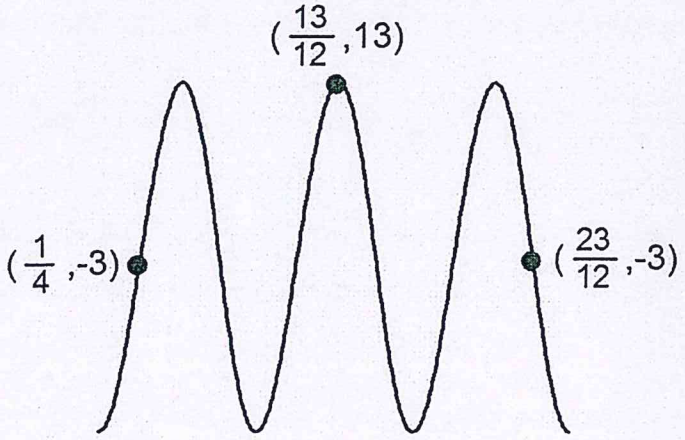
Bellwork Alg 2 Friday, March 22, 2019

1. Find the Period of the Periodic Function shown below.



2. In physics, a particle of mass m moving at speed v has a wavelength λ which can be calculated by the formula $\lambda = \frac{h}{mv}$, where h is a constant. If the speed of a particle is doubled and its mass remains the same, how will its wavelength change?

A) It will remain the same. B) It will increase by 50% C) It will increase by a factor of 2. D) It will decrease by a factor of 2.

3. Line p is in the xy-plane and has an equation $8x - 12y = 40$. Line r is perpendicular to line p. What is the slope of line r ?

4. If a triangle has sides of lengths 6 and 11, which of the following could not be the third side of the triangle?

A) 13 B) 19 C) 6 D) 8

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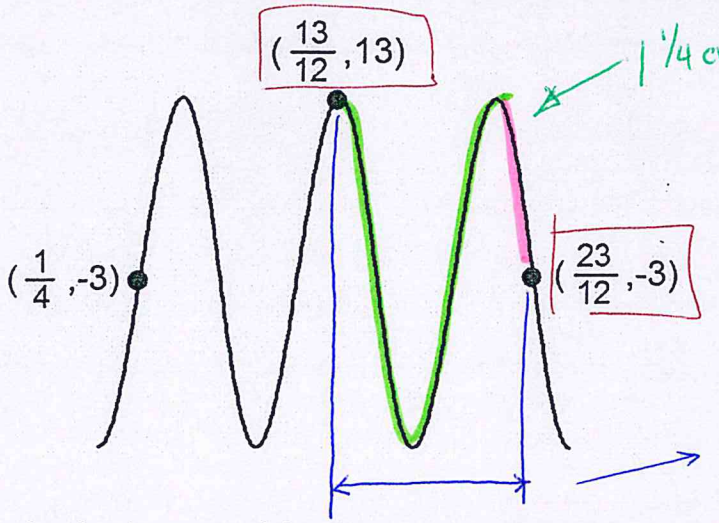
ANSWERS

1. Find the Period of the Periodic Function shown below.



$\frac{23}{12} - \frac{13}{12} = \frac{10}{12}$ units

$$\text{period} = \frac{\frac{10}{12} \text{ units}}{1\frac{1}{4} \text{ cycles}} = \frac{\frac{10}{12}}{\frac{5}{4}} = \frac{10}{12} \cdot \frac{4}{5}$$

period = $\frac{2}{3}$

2. In physics, a particle of mass m moving at speed v has a wavelength λ which can be calculated by the formula $\lambda = \frac{h}{mv}$, where h is a constant. If the speed of a particle is doubled and its mass remains the same, how will its wavelength change?

A) It will remain the same. B) It will increase by 50% C) It will increase by a factor of 2. D) It will decrease by a factor of 2.

$\lambda = \frac{h}{mv}$ speed is doubled → $\frac{h}{m\,2v}$

$= \frac{1}{2}\left(\frac{h}{mv}\right)$ THIS IS 1/2 as much as originally

D

3. Line p is in the xy-plane and has an equation $8x - 12y = 40$. Line r is perpendicular to line p. What is the slope of line r?

line p:

$8x - 12y = 40$

$-12y = 40 - 8x$

$y = \frac{40 - 8x}{-12}$

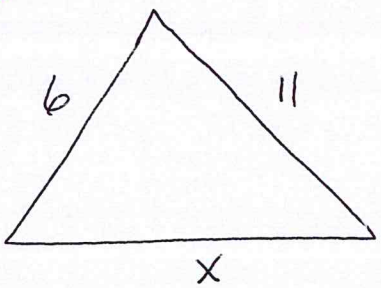
$y = \frac{2}{3}x - \frac{10}{3}$ $m = \frac{2}{3}$

slopes of perpendicular lines are opposite reciprocals

slope of line r = $-3/2$

4. If a triangle has sides of lengths 6 and 11, which of the following could not be the third side of the triangle?

A) 13 B) 19 C) 6 D) 8



TRIANGLE INEQUALITY THEOREM:

THE SUM OF THE LENGTHS OF ANY 2 SIDES OF A Δ MUST BE GREATER THAN THE 3RD SIDE.

$6 + 11 > X \rightarrow X < 17$

$X + 6 > 11 \rightarrow X > 5$

$X + 11 > 6$

$5 < X < 17$ is must Be Between 5 and 17