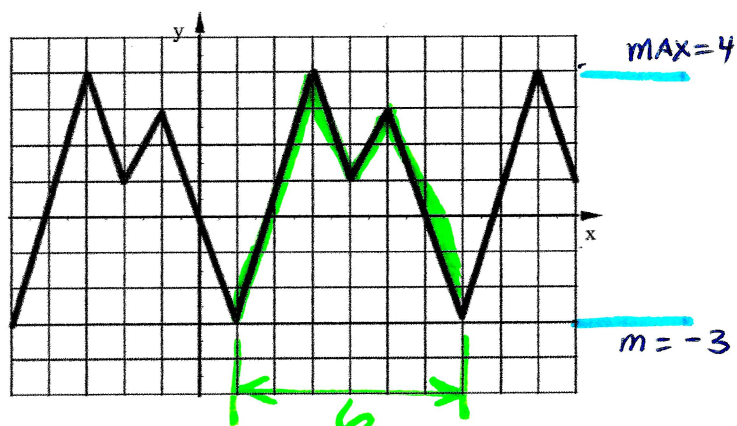


1. Find the Amplitude, Period, and Equation of the Midline for this periodic function.



$$\text{Amplitude} = \frac{\text{max} - \text{min}}{2} = \frac{4 - (-3)}{2} = \frac{7}{2} \text{ or } 3.5$$

Eq of Midline:

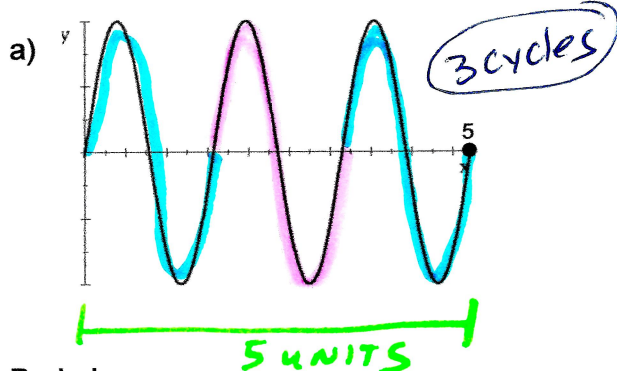
$$y = \frac{\text{max} + \text{min}}{2} = \frac{4 + (-3)}{2} = \frac{1}{2}$$

$y = \frac{1}{2}$

$$\text{Period} = 1 \text{ period} \Rightarrow 6 \text{ units wide}$$

$\text{period} = 6$

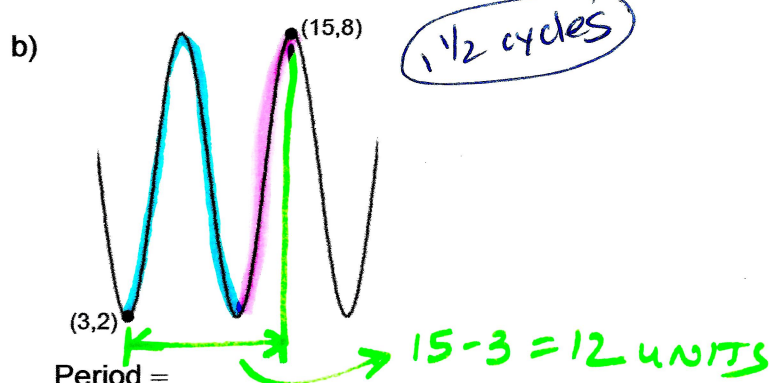
2. Find the period for each periodic function. Give fractional answers in simplified form, not decimals.



Period =

$$\text{period} = \frac{5 \text{ units wide}}{3 \text{ cycles}}$$

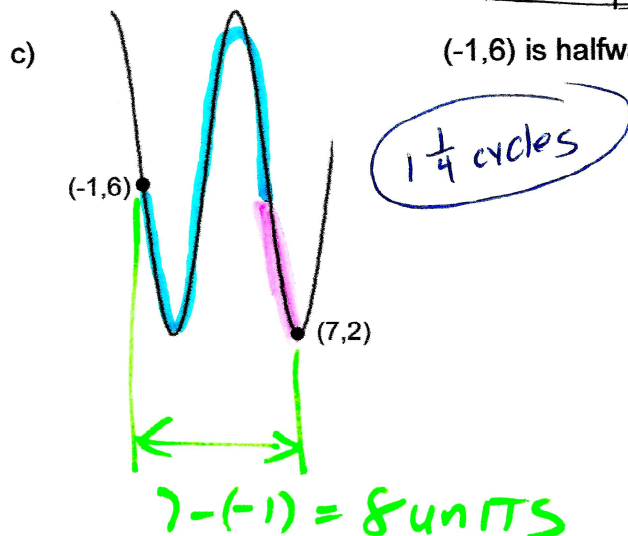
$\text{period} = \frac{5}{3}$



Period =

$$\text{period} = \frac{12 \text{ units wide}}{1\frac{1}{2} \text{ cycles}} = \frac{12}{\frac{3}{2}} = 12 \cdot \frac{2}{3} = 8$$

$\text{period} = 8$



(-1,6) is halfway from the max to the min. Period =

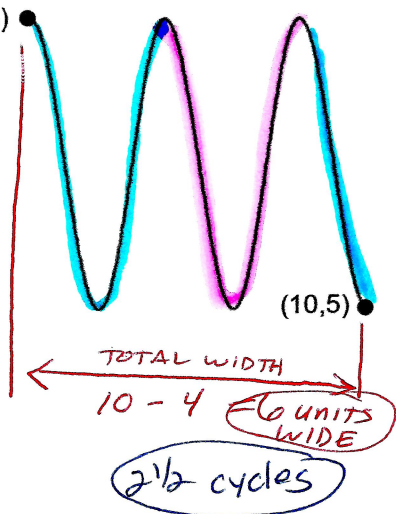
$$\text{period} = \frac{8 \text{ units wide}}{1\frac{1}{4} \text{ cycles}} = \frac{8}{\frac{5}{4}} = 8 \cdot \frac{4}{5} = \frac{32}{5}$$

$\text{period} = \frac{32}{5}$

Find the Period, Amplitude, and Equation of the Midline for each. For Period give fractional answers in simplified form and in terms of π for 4 & 5.

3. (4,13)

max=13
min=5



Amplitude: $\frac{\max - \min}{2} = \frac{13 - 5}{2} = \frac{8}{2} = 4$

Eq of Midline: $y = \frac{\max + \min}{2} = \frac{13 + 5}{2} = \frac{18}{2} = 9$ $y = 9$

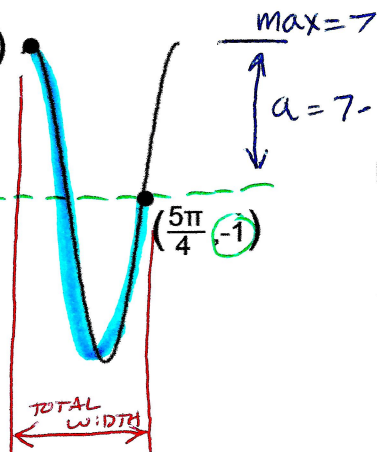
Period: $= \frac{\text{TOTAL WIDTH}}{\# \text{ cycles}} = \frac{6}{2\frac{1}{2}} = \frac{6}{\frac{5}{2}}$

$= 6 \cdot \frac{2}{5}$

period = $\frac{12}{5}$

4. $(\frac{\pi}{2}, 7)$

midline
 $y = -1$



Amplitude: 8

Eq of Midline: $y = -1$

Period: $\frac{\text{TOTAL WIDTH}}{\# \text{ cycles}} = \frac{\frac{3\pi}{4}}{\frac{3}{4}} = \frac{3\pi}{4} \cdot \frac{4}{3}$

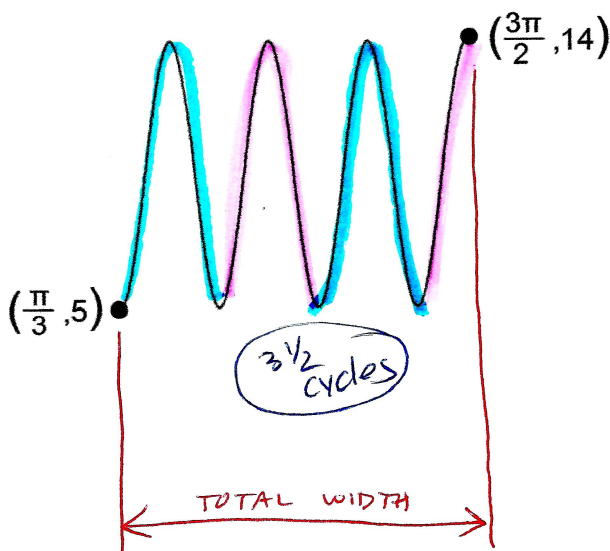
period = π

$\frac{5\pi}{4} - \frac{\pi}{2} = \frac{2\pi}{4} = \frac{\pi}{2}$ $\frac{3\pi}{4}$ WIDE

$\frac{3}{4}$ of a cycle

5.

max=14
min=5



Amplitude: $\frac{\max - \min}{2} = \frac{14 - 5}{2} = \frac{9}{2}$ or 4.5 $\frac{9}{2}$ or 4.5

Eq of Midline: $y = \frac{\max + \min}{2} = \frac{14 + 5}{2} = \frac{19}{2}$

$y = \frac{19}{2}$ or 9.5

Period: $= \frac{\text{TOTAL WIDTH}}{\# \text{ cycles}} = \frac{\frac{7\pi}{6}}{3\frac{1}{2}} = \frac{\frac{7\pi}{6}}{\frac{7}{2}} = \frac{7\pi}{6} \cdot \frac{2}{7} = \frac{\pi}{3}$

$= \frac{7\pi}{6} \cdot \frac{2}{7} = \frac{\pi}{3}$

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

$\frac{3}{2} \cdot \frac{3\pi}{2} - \frac{\pi}{3} = \frac{9\pi}{6} - \frac{2\pi}{6} = \frac{7\pi}{6}$ $\frac{7\pi}{6}$ WIDE