Name_____ Quiz 14.1 - 14.2 Practice

Find the amplitude and the period of the graph of the function.

1. $y = \sin 4x$ amplitude: 1 period $\frac{2\pi}{4} = \frac{\pi}{2}$

2. $y = \frac{1}{2}\cos 3x$ amplitude: $\frac{1}{2}$ period $\frac{2\pi}{3}$

3. $y = 2\sin 2\pi x$ amplitude: 2 period $\frac{2\pi}{2\pi} = 1$

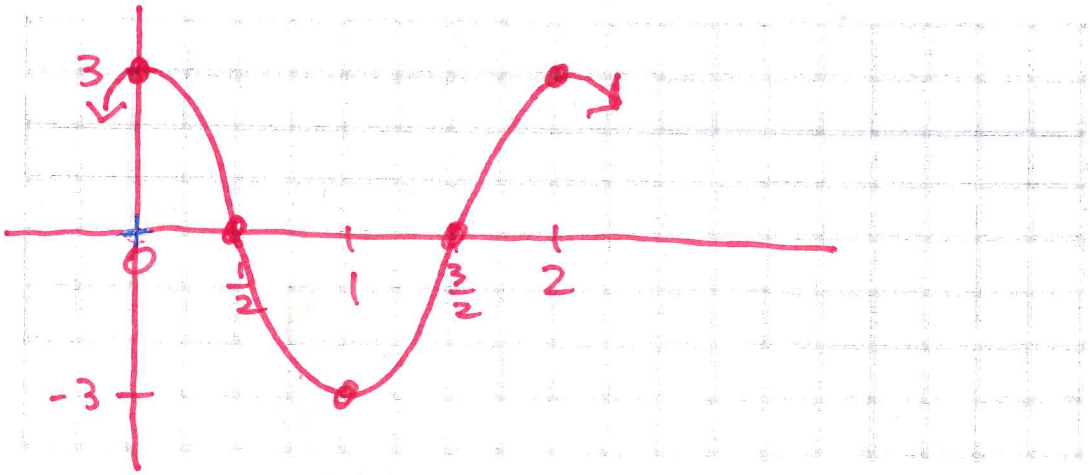
4. $y = 4\cos \frac{\pi}{4}x$ amplitude: 4 period $2\pi / \frac{\pi}{4} = 2\pi \cdot \frac{4}{\pi} = 8$

Graph the function: Clearly show the points you plotted to create the graph.

5. $y = 3\cos \pi x$

Amp = 3

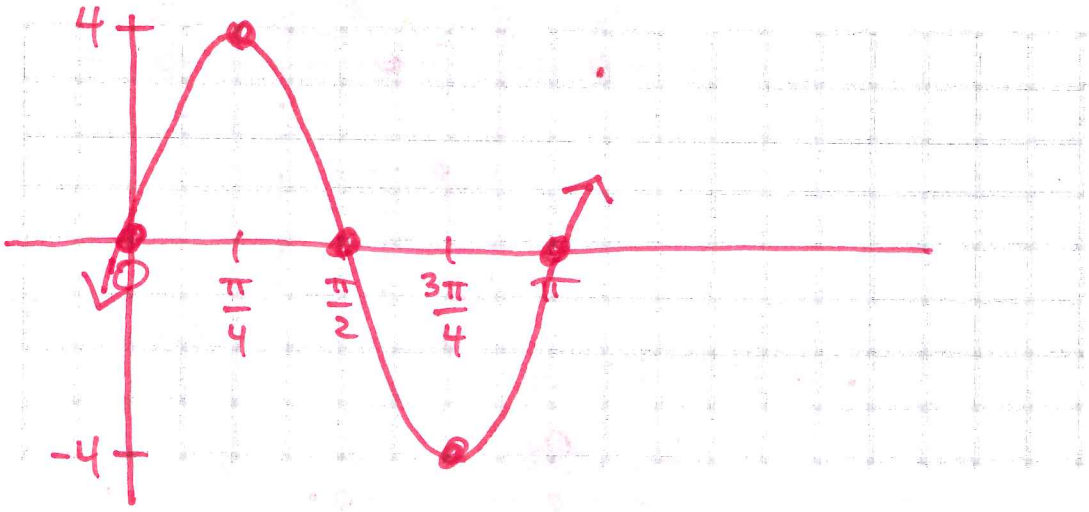
Per = $\frac{2\pi}{\pi} = 2$



6. $y = 4\sin 2x$

Amp = 4

Per = $\frac{2\pi}{2} = \pi$



7. $y = 3\cos\left(x - \frac{\pi}{2}\right) + 2$

Parent: $y = 3\cos x$

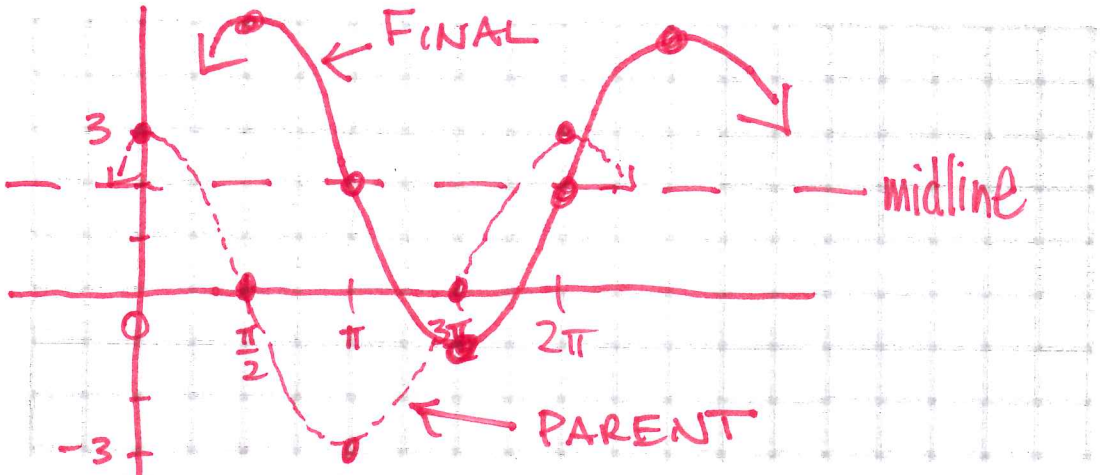
Amp: 3

Per: 2π

$\frac{\pi}{2}$ right

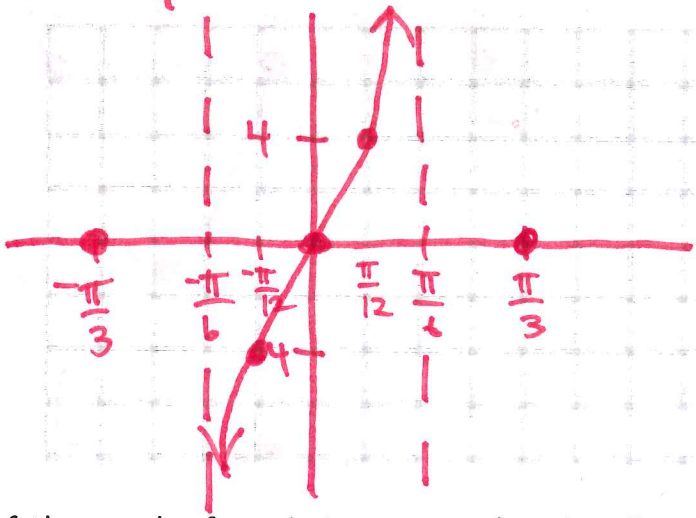
2 up

midline: $y = 2$



8. $y = 4\tan 3x$

Period: $\frac{\pi}{3}$

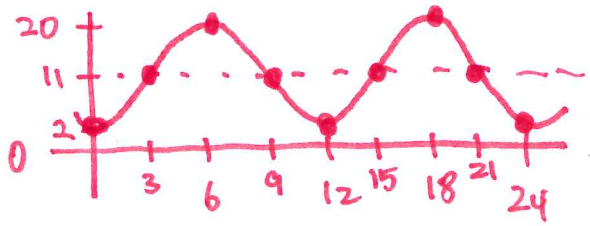


9. Write an equation of the graph of $y = 4\sin x$ translated up 5 units and left $\frac{\pi}{2}$ units.

$y = 4\sin\left(x + \frac{\pi}{2}\right) + 5$

10. The depth of the ocean in a certain location at low tide and high tide varies between 2 feet and 20 feet. Each height is reached twice during the day.

a) Sketch and label a graph to represent the situation <u>beginning at low tide</u> and continuing for 1 day.



Optional — Will be extra credit.

b. Identify the amplitude and period of your graph.

Amplitude $= \frac{20-2}{2} = \frac{18}{2} = 9$

Period = 12 hours

c. Using sin x, write a function model for this situation. Why is sin x the most logical choice?

$y = -9\cos\left(\frac{\pi}{6}x\right) + 11$