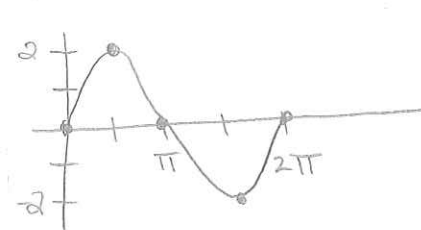# 6-4 Practice #1

Name_____ **Key**

State the amplitude and period for each function. Then graph each function on a separate piece of graph paper.
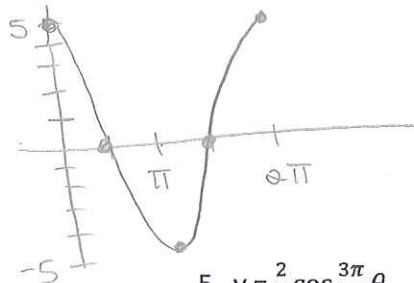
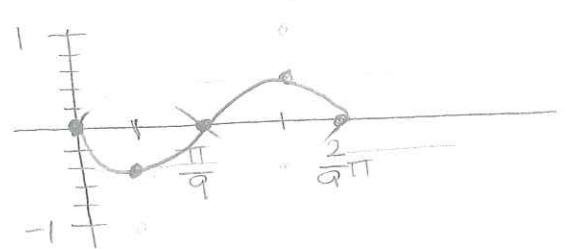1. $y = 2 \sin \theta$

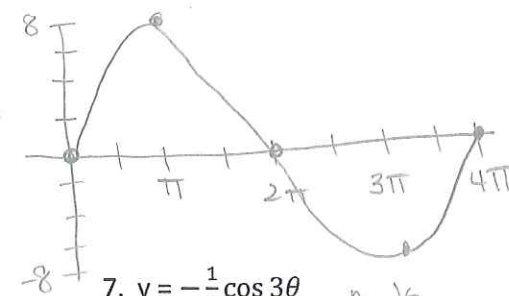$A = 2 \quad$ period $= 2\pi$

2. $y = 5 \cos \theta$

$A = 5 \quad$ period $= 2\pi$

3. $y = -\frac{2}{5} \sin 9\theta$

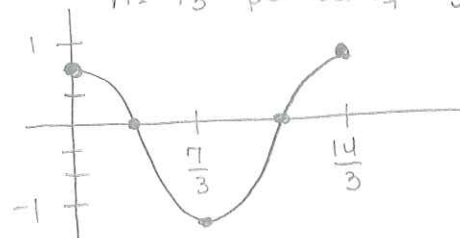$A = 2/5 \quad$ period $= \frac{2}{9}\pi$

4. $y = 8 \sin 0.5\theta$
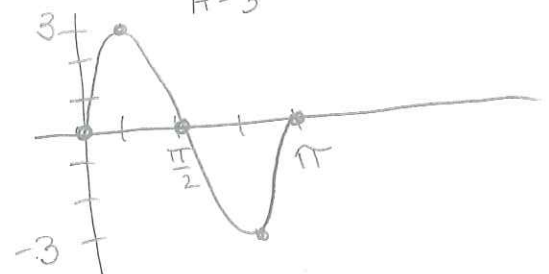
$A = 8 \quad$ period $= 4\pi$

5. $y = \frac{2}{3} \cos \frac{3\pi}{7} \theta$

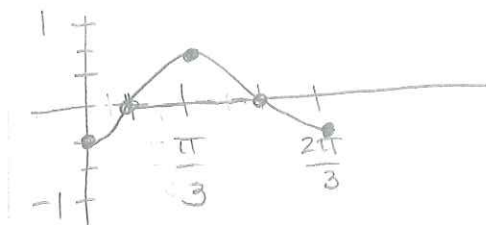$A = 2/3 \quad$ period $\frac{2\pi}{\frac{3\pi}{7}} = \frac{14}{3}$
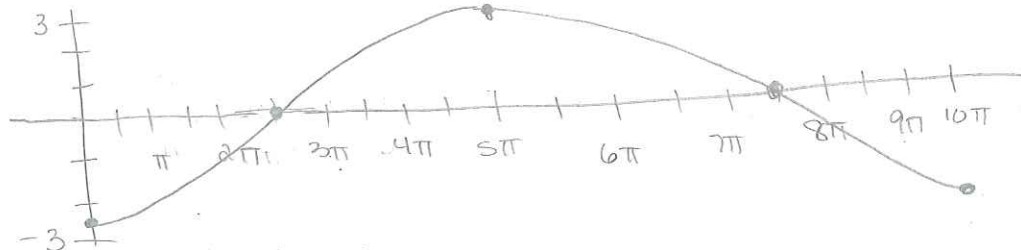

6. $y = 3 \sin 2\theta$

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

$A = 3$

7. $y = -\frac{1}{3} \cos 3\theta$

$A = 1/3$

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

8. $y = -2.5 \cos \frac{\theta}{5}$

$A = 2.5 \quad \frac{2\pi}{\frac{1}{5}} = 10\pi$

Write the equation of the sine function with each amplitude and period.

9. amplitude = 35.7, period = $\frac{\pi}{4}$

$\frac{2\pi}{K} = \frac{\pi}{4}$

$K\pi = 8\pi$

$K = 8$

$y = \pm 35.7 \sin 8\theta$

10. amplitude = $\frac{1}{4}$, period = $\frac{\pi}{3}$

$\frac{2\pi}{K} = \frac{\pi}{3}$

$K\pi = 6\pi$

$K = 6$

$y = \pm \frac{1}{4} \sin 6\theta$

11. amplitude = 4.5, period = $\frac{5\pi}{4}$

$\frac{2\pi}{K} = \frac{5\pi}{4}$

$\frac{5\pi K}{5\pi} = \frac{8\pi}{5\pi}$

$K = \frac{8}{5}$

$y = \pm 4.5 \sin \frac{8}{5}\theta$

12. amplitude = 16, period = 30

$\frac{2\pi}{K} = \frac{30}{1}$

$2\pi = 30K$

$K = \frac{\pi}{15}$

$y = \pm 16 \sin \frac{\pi}{15} \theta$

Write the equation of the cosine function with each amplitude and period.

13. amplitude = 5, period = 2π

$$y = 5\cos\theta$$

14. amplitude = $\frac{5}{8}$, period = $\frac{\pi}{7}$

$$\frac{2\pi}{k} = \frac{\pi}{7} \qquad y = \pm\frac{5}{8}\cos 14\theta$$
$$k = 14$$

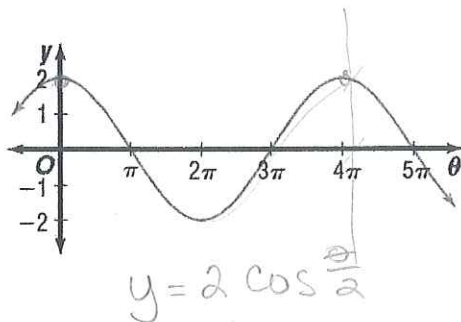15. amplitude = 0.5, period = 0.3

$$y = \pm 0.5\cos\frac{20\pi}{3}\theta$$

$$\frac{2\pi}{k} = 0.3$$
$$k = \frac{20\pi}{3}$$
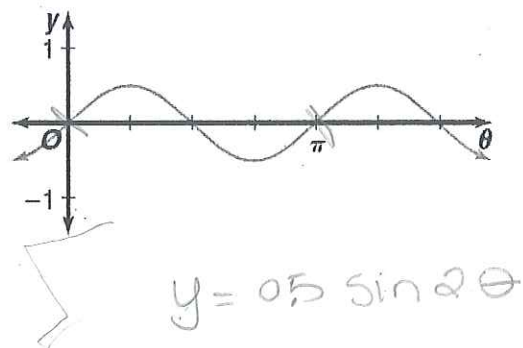
16. amplitude = $\frac{2}{5}$, period = $\frac{3}{5}$

$$\frac{2\pi}{k} = \frac{3}{5}$$
$$3k = 10\pi$$
$$k = \frac{10\pi}{3} \qquad y = \pm\frac{2}{5}\cos\frac{10\pi}{3}\theta$$
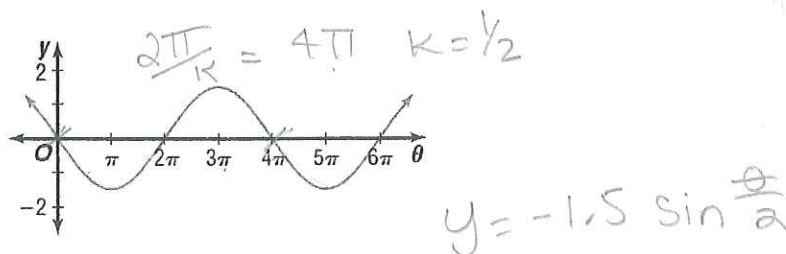
Write an equation for each graph.

17.
$$\frac{2\pi}{k} = 4\pi \qquad k = \frac{1}{2}$$

$$y = 2\cos\frac{\theta}{2}$$

18.
$$\frac{2\pi}{k} = \pi \qquad k = 2$$

$$y = 0.5\sin 2\theta$$

19.
$$\frac{2\pi}{k} = 4\pi \qquad k = \frac{1}{2}$$

$$y = -1.5\sin\frac{\theta}{2}$$

20. The equation of the vibrations of the note F above middle C is represented by $y = 0.5 \sin 698\pi t$. Determine the amplitude and period for the function.

$$\text{Amp} = \boxed{0.5}$$

$$\text{Period} = \frac{2\pi}{698\pi} = \boxed{\frac{1}{349}}$$