

Accel. PreCalculus
Graphing Sine Functions
Putting it all together

Name Key
Date _____

For each of the following functions, state the amplitude, period, any vertical or phase shifts, and sketch one period.

$$2(\theta + \frac{\pi}{4})$$

1. $y = 2 \sin(2\theta + \frac{\pi}{2}) - 2$

$$\frac{1}{2}(\theta + \frac{\pi}{2})$$

2. $y = \frac{1}{2} \sin(\frac{\theta}{2} + \frac{\pi}{4}) + 1$

$$2(\theta - \frac{\pi}{6})$$

3. $y = 3 \sin(2\theta - \frac{\pi}{3}) - 2$

4. $y = 3 \sin(\theta + \frac{3\pi}{4}) - 1$

$$4(\theta + \frac{\pi}{12})$$

5. $y = 4 \sin(4\theta + \frac{\pi}{3}) + 1$

$$2(\theta + \frac{\pi}{3})$$

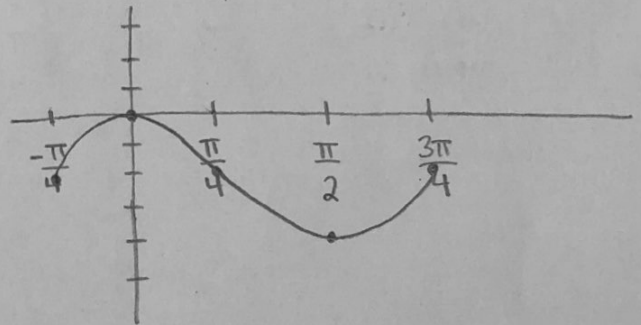
6. $y = 3 \sin(2\theta + \frac{2\pi}{3}) - 2$

- ① Amp. = 2
Period = π
PS = left $\frac{\pi}{4}$
VS = down 2

$$0 \leq 2\theta + \frac{\pi}{2} \leq 2\pi$$

$$-\frac{\pi}{2} \leq 2\theta \leq \frac{3\pi}{2}$$

$$-\frac{\pi}{4} \leq \theta \leq \frac{3\pi}{4}$$

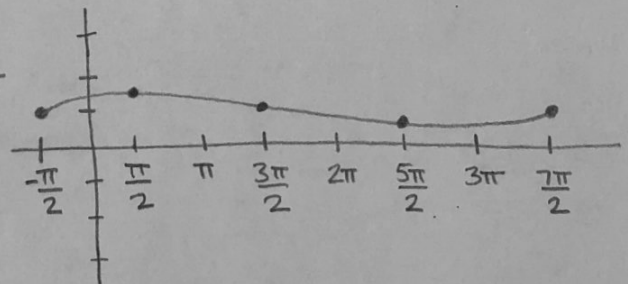


- ② Amp. = $\frac{1}{2}$
Period = 4π
PS = left $\frac{\pi}{2}$
VS = up 1

$$0 \leq \frac{1}{2}\theta + \frac{\pi}{4} \leq 2\pi$$

$$-\frac{\pi}{4} \leq \frac{1}{2}\theta \leq \frac{7\pi}{4}$$

$$-\frac{\pi}{2} \leq \theta \leq \frac{7\pi}{2}$$

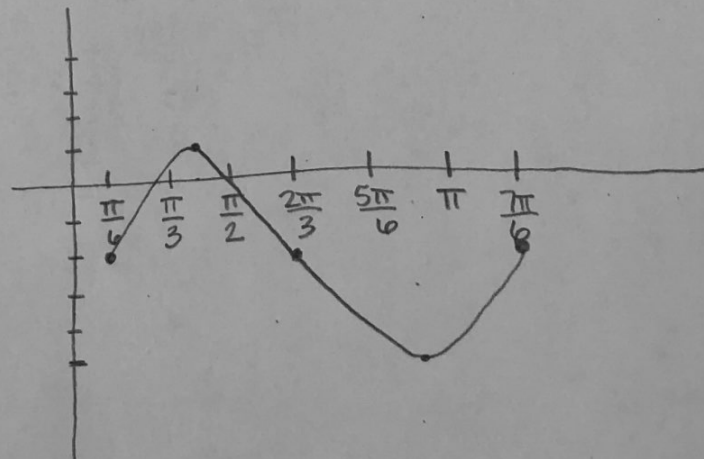


- ③ Amp. = 3
Period = π
PS = right $\frac{\pi}{6}$
VS = down 2

$$0 \leq 2\theta - \frac{\pi}{3} \leq 2\pi$$

$$\frac{\pi}{3} \leq 2\theta \leq \frac{7\pi}{3}$$

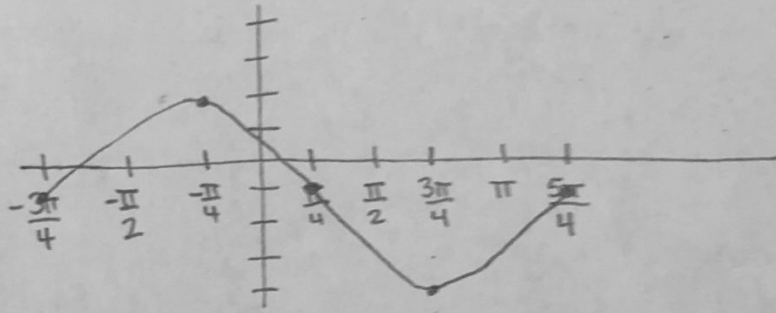
$$\frac{\pi}{6} \leq \theta \leq \frac{7\pi}{6}$$



- ④ Amp = 3
 Period = 2π
 PS = left $3\pi/4$
 VS = down 1

$$0 \leq \theta + \frac{3\pi}{4} \leq 2\pi$$

$$-\frac{3\pi}{4} \leq \theta \leq \frac{5\pi}{4}$$

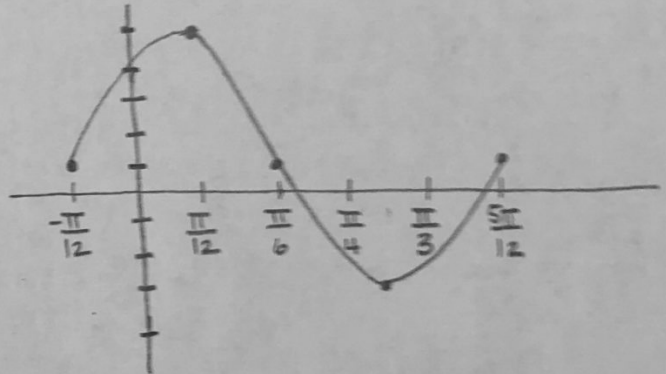


- ⑤ Amp = 4
 Period = $\pi/2$
 PS = left $\pi/12$
 VS = up 1

$$0 \leq 4\theta + \frac{\pi}{3} \leq 2\pi$$

$$-\frac{\pi}{3} \leq 4\theta \leq \frac{5\pi}{3}$$

$$-\pi/12 \leq \theta \leq 5\pi/12$$



- ⑥ Amp = 3
 Period = π
 PS = left $\pi/3$
 VS = down 2

$$0 \leq 2\theta + \frac{2\pi}{3} \leq 2\pi$$

$$-\frac{2\pi}{3} \leq 2\theta \leq \frac{4\pi}{3}$$

$$-\pi/3 \leq \theta \leq 2\pi/3$$

