

## Graph sin and cosine functions

Date \_\_\_\_\_ Period \_\_\_\_\_

**Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift. Then sketch the graph using radians.**

1)  $y = 4\sin 4\theta$

2)  $y = 2\cos 4\theta$

3)  $y = 2\cos 2\theta$

4)  $y = \frac{1}{2} \cdot \cos 3\theta$

$$5) y = 3\cos\frac{\theta}{3} - 2$$

$$6) y = \frac{1}{2} \cdot \sin\frac{\theta}{3} + 2$$

$$7) y = 2 + \cos 2\theta$$

$$8) y = 1 + 4\cos\left(\frac{\theta}{4} + \frac{11\pi}{6}\right)$$

$$9) y = 2\cos\left(4\theta + \frac{5\pi}{6}\right)$$

$$10) y = -2 + 4\cos\left(3\theta - \frac{\pi}{4}\right)$$