

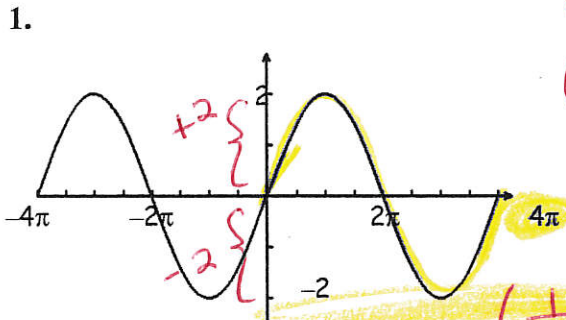
#4 SIN & COS GRAPHS - 3 TRANSFORMATIONS PRACTICE

Key

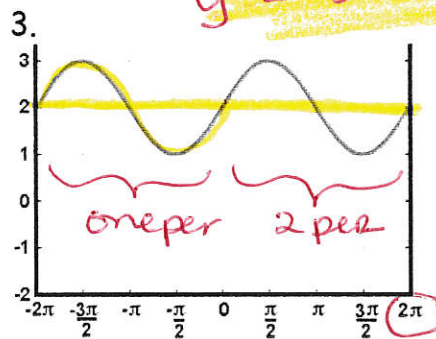
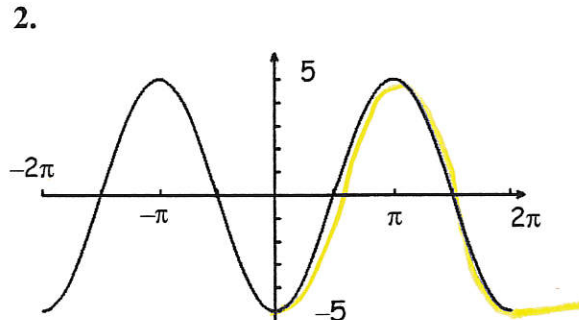
Name: _____

Identify the amplitude and period of each function graphed below. Then write an equation of each graph. Check your answers by graphing your equation in your calculator.

per = $4\pi = \frac{2\pi}{b}$ $4\pi b = 2\pi$
 $b = \frac{1}{2}$
 $a = 2$
 POS
 SIN



$y = 2\sin\left(\frac{1}{2}x\right)$



$d = 2$ $y = \sin(ax) + 2$ Neg COS
 $a = 1$ $|a| = 5$
 POS SIN $a = -5$
 period = $\pi = \frac{2\pi}{b}$ per = 2π
 so $b = 2$ so $b = 1$

$y = -5\cos x$

Determine the amplitude, period, increment, and mid-line for each. Then graph!

4. $y = 2\cos(3x) - 1$

GRAPH IT!

$a = 2$

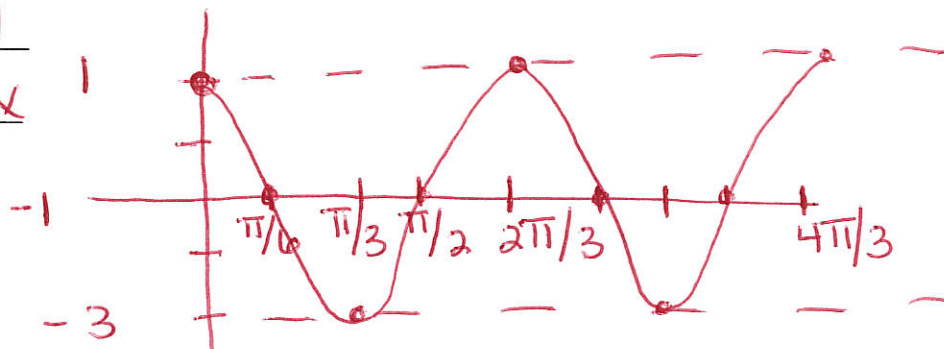
$b = 3$

Period = $\frac{2\pi}{b} = \frac{2\pi}{3}$

Increment = $\frac{\text{per}}{4} = \frac{2\pi/3}{4} = \frac{2\pi}{12} = \frac{\pi}{6}$

VS = -1 , so midline is $y = -1$

Positive Cosine starts at the max



5. $y = \frac{1}{2} \cos 2x - 4$

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

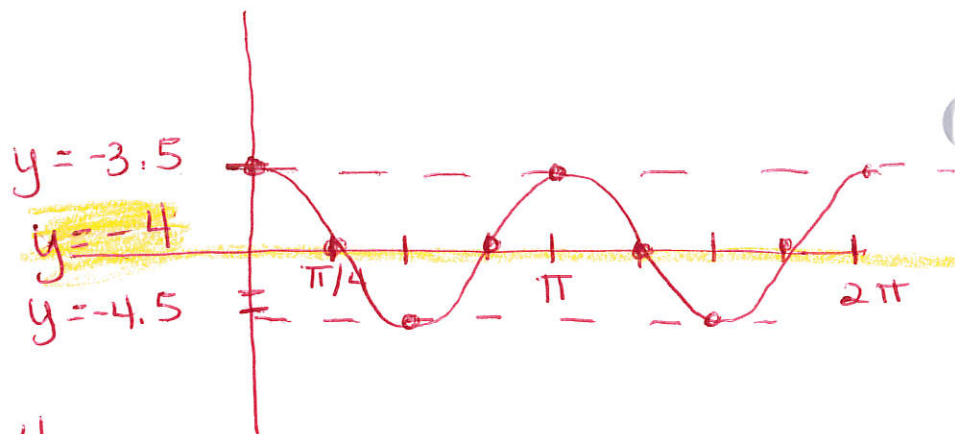
$b = 2$

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

Increment = $\frac{\pi}{4}$

VS = $\downarrow 4$, so midline is $y = -4$

Positive Cosine starts at the max



6. $y = 3 + 4 \sin\left(\frac{1}{4}x\right)$

$a = 4$

$b = \frac{1}{4}$

Period = $2\pi \div \frac{1}{4} = 8\pi$

Increment = 2π

VS = $\uparrow 3$, so midline is $y = 3$

Positive Sine starts at the mid, goes \uparrow



$y = -\frac{1}{2} \cos \frac{1}{3}x + 3$

$a = -\frac{1}{2}$

$b = \frac{1}{3}$

Period = 6π

Increment = $3\pi/2$

VS = $\uparrow 3$, so midline is $y = 3$

Negative Cosine starts at the min line

