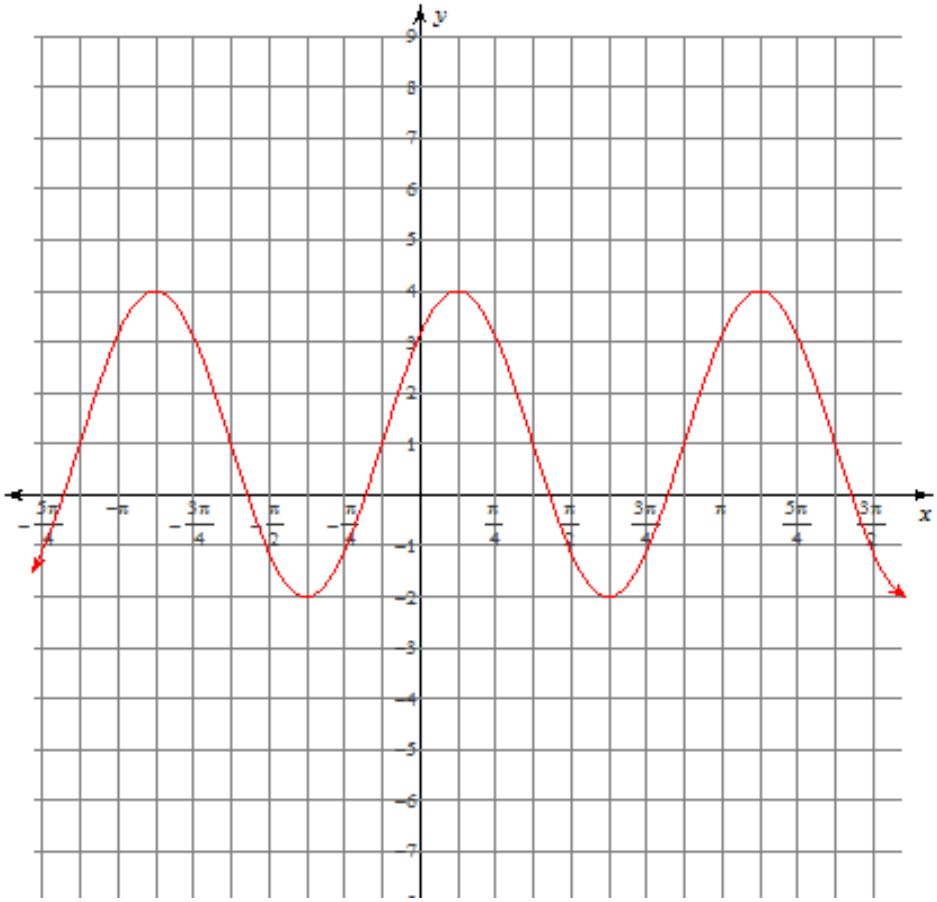
YOUR TURN:

1. Write an equation for the function illustrated below in the form:

   a. $y = a \sin b(x - c) + d$

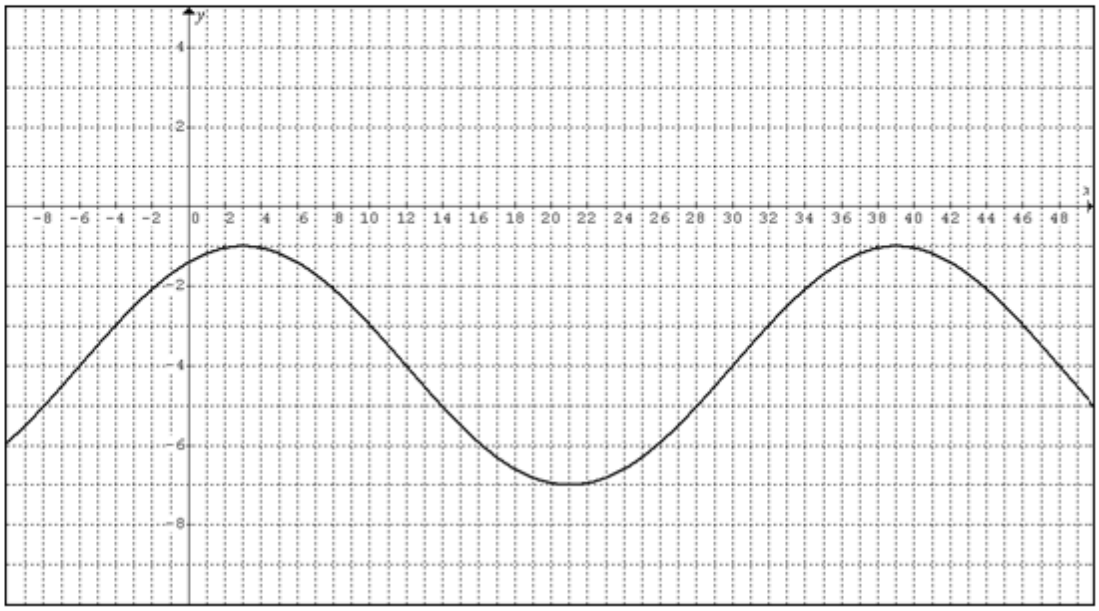
   b. $y = a \cos b(x - c) + d$



TRANSFORMATION OF Y = SIN θ	TRANSFORMATION OF Y = COS θ
Vertical stretch factor = 3	Vertical stretch factor = 3
Reflected in the x-axis: no / yes	Reflected in the x-axis: no / yes
Vertical translation = 1 unit up	Vertical translation = 1 unit up
Horizontal stretch factor = $\frac{1}{2}$	Horizontal stretch factor = $\frac{1}{2}$
Horizontal translation = $\frac{\pi}{8}$ left / $\frac{3\pi}{8}$ right	Horizontal translation = $\frac{\pi}{8}$ right / $\frac{3\pi}{8}$ left
EQUATION: $y = 3\sin 2(x + \frac{\pi}{8}) + 1$	EQUATION: $y = 3\cos 2(x - \frac{\pi}{8}) + 1$
EQUATION (reflected): $y = -3\sin 2(x - \frac{3\pi}{8}) + 1$	EQUATION (reflected): $y = -3\cos 2(x + \frac{3\pi}{8}) + 1$

2. Write an equation for the function illustrated below in the form:

   a. $y = a\sin b(x-c)+d$
   b. $y = a\cos b(x-c)+d$

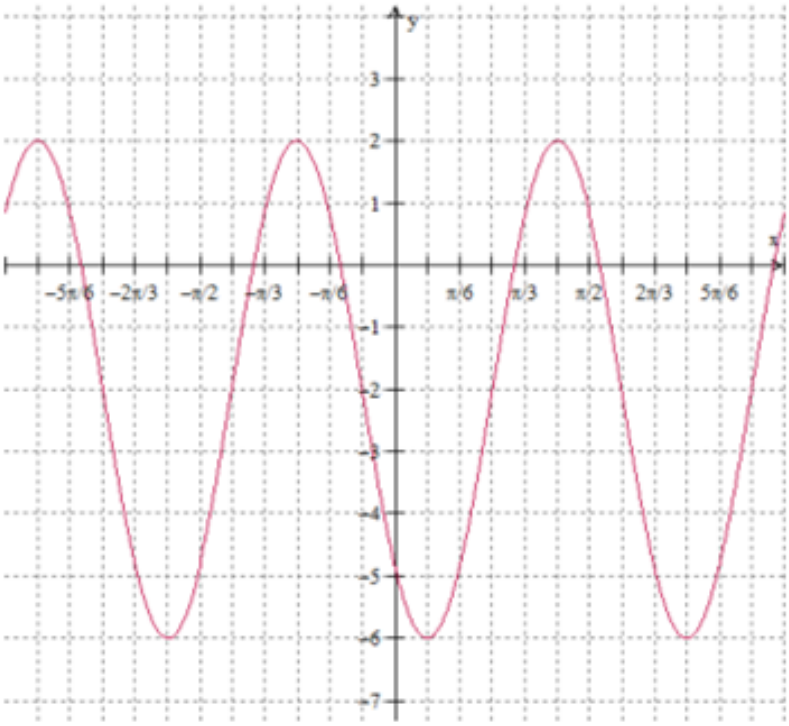


TRANSFORMATION OF Y = SIN θ	TRANSFORMATION OF Y = COS θ
Vertical stretch factor = 3	Vertical stretch factor = 3
Reflected in the x-axis: no/yes	Reflected in the x-axis: no/yes
Vertical translation = 4 down	Vertical translation = 4 down
Horizontal stretch factor= $\frac{1}{10}$	Horizontal stretch factor = $\frac{1}{10}$
Horizontal translation = 6° left/12° right	Horizontal translation = 3° right/21° right
EQUATION: $y=3\sin 10(x+6°)-4$	EQUATION: $y=3\cos 10(x-3°)-4$
EQUATION (reflected): $y=-3\sin 10(x-12°)-4$	EQUATION (reflected): $y=-3\cos 10(x-21°)-4$

3. Write an equation for the function illustrated below in the form:

a. $y = a\sin b(x-c)+d$

b. $y = a\cos b(x-c)+d$



TRANSFORMATION OF Y = SIN θ

Vertical stretch factor = 4

Reflected in the x-axis: no/yes

Vertical translation = 2 down

Horizontal stretch factor = $\frac{1}{3}$

Horizontal translation = $\frac{\pi}{4}$ right/$\frac{\pi}{12}$ left

EQUATION: $y = 4\sin 3\left(x-\frac{\pi}{4}\right)-2$

EQUATION (reflected): $y = -4\sin 3\left(x+\frac{\pi}{12}\right)-2$

TRANSFORMATION OF Y = COS θ

Vertical stretch factor = 4

Reflected in the x-axis: no/yes

Vertical translation = 2 down

Horizontal stretch factor = $\frac{1}{3}$

Horizontal translation = $\frac{5\pi}{12}$ right/$\frac{\pi}{12}$ right

EQUATION: $y = 4\cos 3\left(x-\frac{5\pi}{12}\right)-2$

EQUATION (reflected): $y = -4\cos 3\left(x-\frac{\pi}{12}\right)-2$