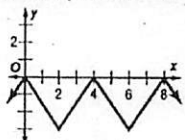
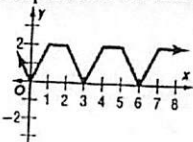


Chapter 11B Review Non-Calculator

1) Determine the period of the function:



3) Find the amplitude of the function:



5) Find the phase shift of $f(x) = 3 + 2\cos(\theta + 90)$

2) Find the period of $f(x) = 4\sin \frac{5}{2} \cdot \theta$

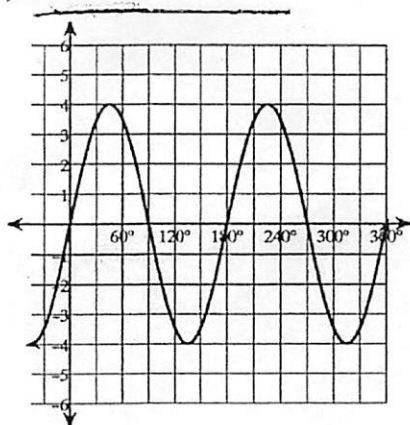
4) Find the amplitude of $f(x) = -2 + 3\sin\left(\theta + \frac{\pi}{4}\right)$

6) Find the vertical shift of $f(x) = -3 + \frac{1}{2} \cdot \sin\left(\theta + \frac{\pi}{2}\right)$

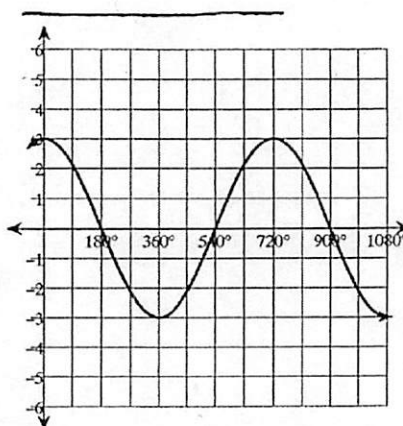
Write the equation of the graph of each function using degrees.

(There are no phase shifts or vertical shifts).

7)



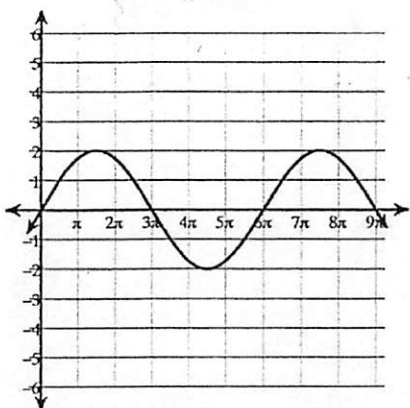
8)



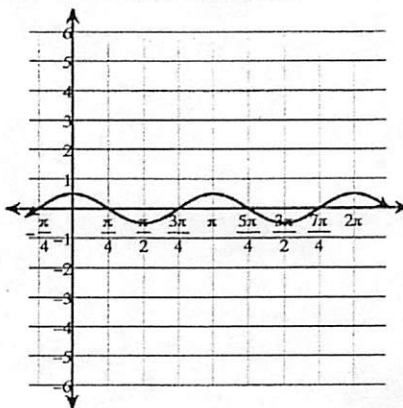
Write the equation of the graph each function using radians.

(There are no phase shifts or vertical shifts).

9)



10)



11) The temperature T in degrees Fahrenheit of a city t months into the year is approximated by the

$$\text{formula } T = 42 + 30\sin \frac{\pi}{6} \cdot t$$

- What is the highest monthly temperature for the city?
- In what month does the highest temperature occur?
- What is the lowest monthly temperature for the city?
- In what month does the lowest temperature occur?

Find the exact value of each trigonometric function.

12) $\cot -810^\circ$

13) $\csc 720^\circ$

14) $\cos 540^\circ$

15) $\tan 210^\circ$

16) $\sec -30^\circ$

17) $\sin -150^\circ$

Evaluate each trigonometric function. Give your answer in both radians and degrees.

$$y = \sin^{-1} x ; -\frac{\pi}{2} \leq y \leq \frac{\pi}{2} \text{ and } y = \sin^{-1} x ; -90^\circ \leq y \leq 90^\circ$$

$$y = \tan^{-1} x ; -\frac{\pi}{2} < y < \frac{\pi}{2} \text{ and } y = \tan^{-1} x ; -90^\circ < y < 90^\circ$$

$$y = \cos^{-1} x ; 0 \leq y \leq \pi \text{ and } y = \cos^{-1} x ; 0^\circ \leq y \leq 180^\circ$$

18) $\cos^{-1} -1$

19) $\sin^{-1} \frac{1}{2}$

20) $\tan^{-1} -1$

21) $\cos^{-1} \left(-\frac{\sqrt{2}}{2} \right)$

22) $\tan^{-1} 0$

23) $\sin^{-1} 1$

24) $\cos^{-1} \frac{1}{2}$

25) $\tan^{-1} \sqrt{3}$

26) $\sin^{-1} \left(-\frac{\sqrt{3}}{2} \right)$

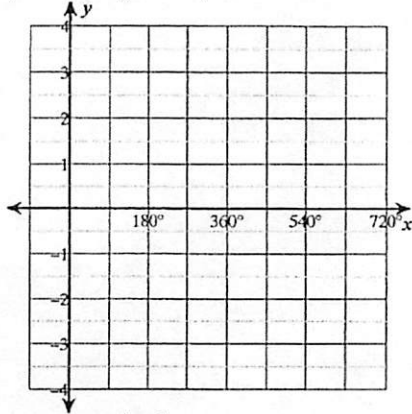
27) $\tan^{-1} \left(-\frac{\sqrt{3}}{3} \right)$

Chapter 11B Review

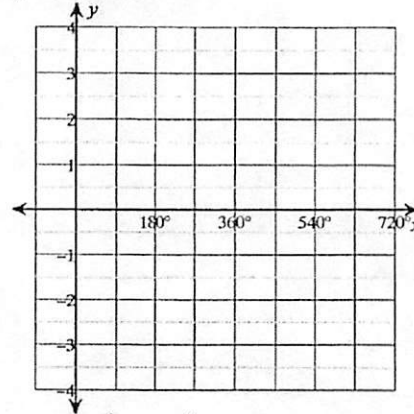
Graph the functions using degrees.

Identify the period, amplitude, phase shift, vertical shift, domain and range:

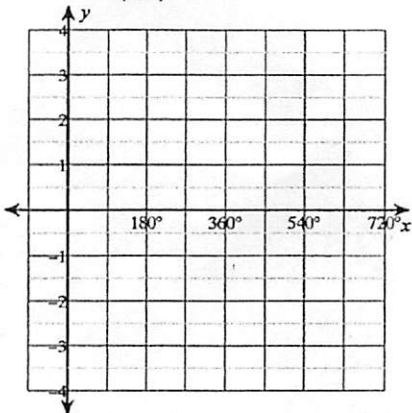
1) $y = 3\cos(x - 90^\circ)$



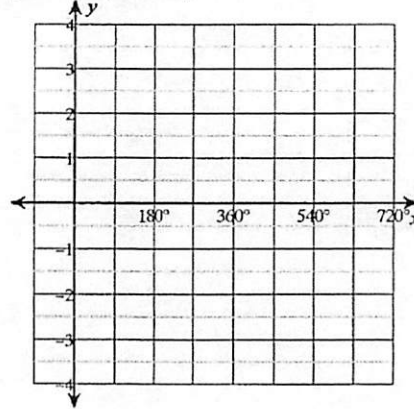
2) $y = -2\sin 2x$



3) $y = 2\cos\left(\frac{1}{2}x\right) - 1$



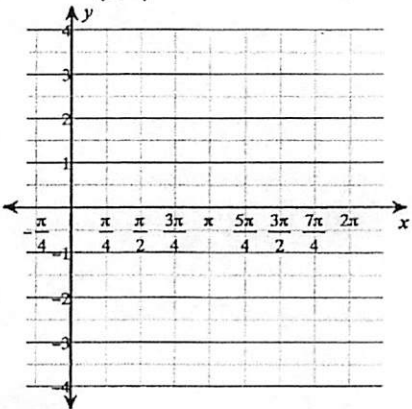
4) $y = \sin(x + 90^\circ)$



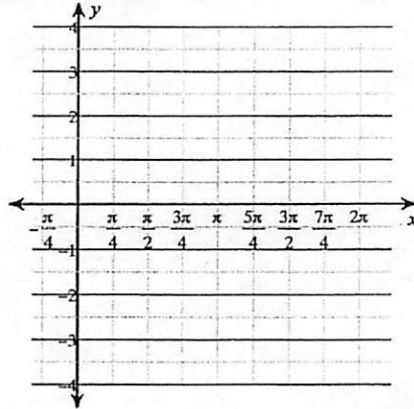
Graph the functions using radians.

Identify the period, amplitude, phase shift, vertical shift, domain and range:

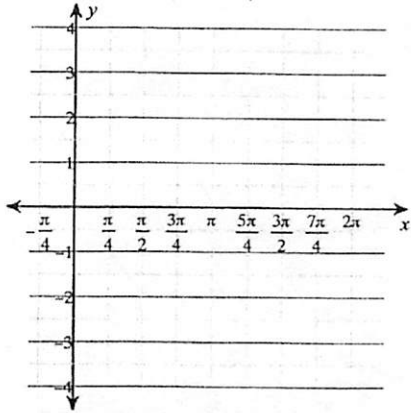
5) $y = \sin\left(\frac{1}{2}\theta\right) + 1$



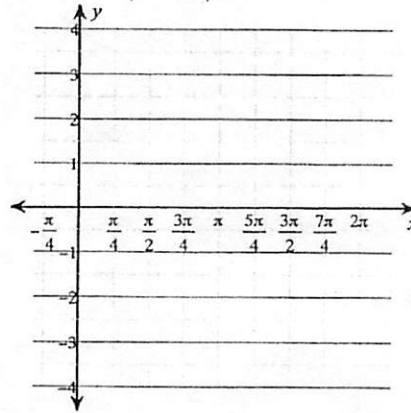
6) $y = -\cos(\theta - \pi) + 2$



$$7) y = -4\sin 2 \cdot \left(\theta - \frac{\pi}{4} \right) + 2$$



$$8) y = 3\cos \left(\theta + \frac{\pi}{3} \right)$$



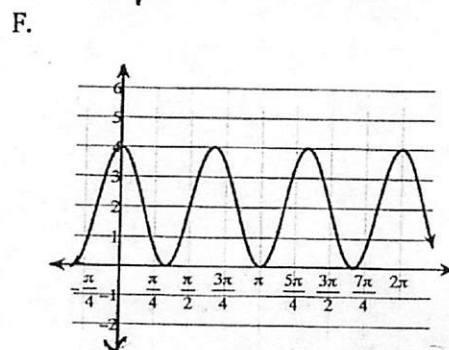
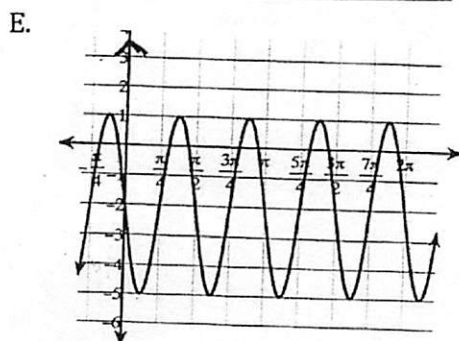
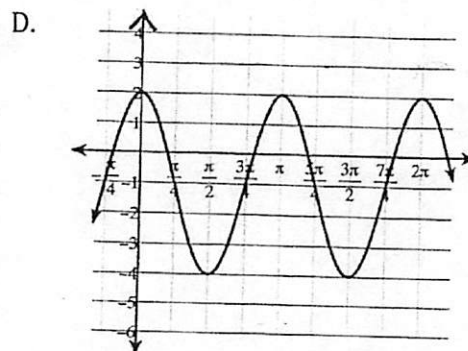
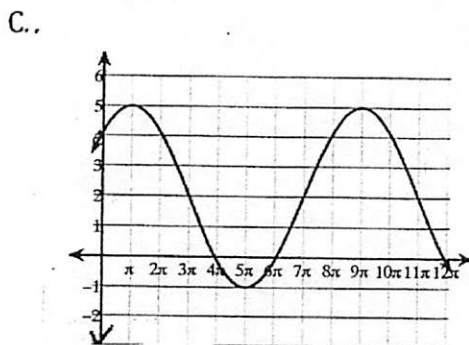
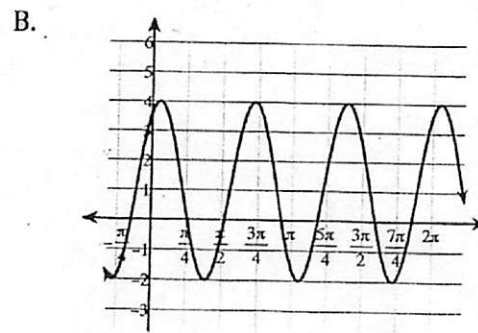
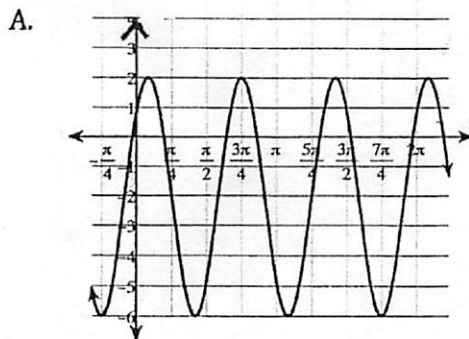
Match the function with the graph.

$$9) y = 2\cos 3\theta + 2$$

$$11) y = 3\sin \left(\frac{\theta}{4} + \frac{\pi}{4} \right) + 2$$

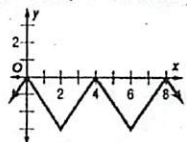
$$10) y = -1 + 3\cos 2\theta$$

$$12) y = 3\sin \left(3\theta + \frac{\pi}{3} \right) + 1$$



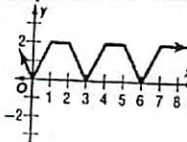
Chapter 11B Review Non-Calculator

1) Determine the period of the function:



4

3) Find the amplitude of the function:



1

5) Find the phase shift of $f(x) = 3 + 2\cos(\theta + 90)$

90° left

2) Find the period of $f(x) = 4\sin \frac{5}{2} \cdot \theta$

$$\frac{360}{5/2} = 360 \cdot \frac{2}{5} = 144^\circ$$

4) Find the amplitude of

$$f(x) = -2 + 3\sin\left(\theta + \frac{\pi}{4}\right)$$

3

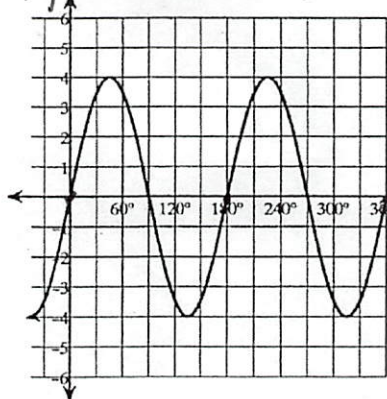
6) Find the vertical shift of

$$f(x) = -3 + \frac{1}{2} \cdot \sin\left(\theta + \frac{\pi}{2}\right)$$

down 3

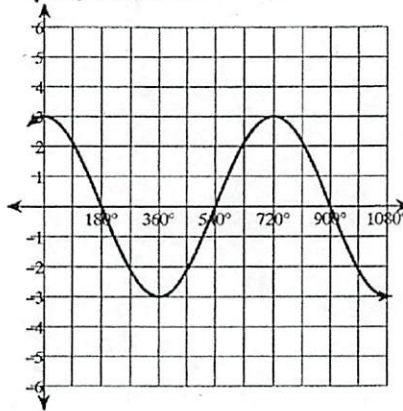
Write the equation of the graph of each function using degrees.
(There are no phase shifts or vertical shifts).

7) $y = 4\sin 2x$



a: 4
per: 180°
b = 2

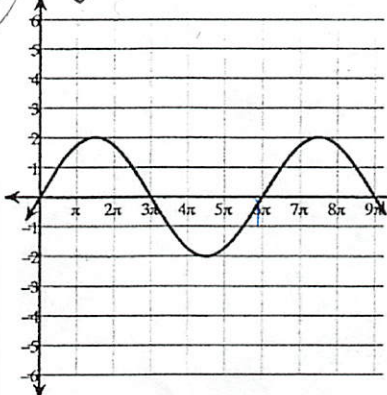
8) $y = 3\cos \frac{1}{2}x$



a: 3
per: 720°
b = 1/2

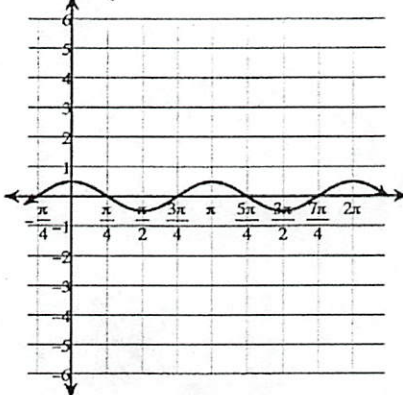
Write the equation of the graph each function using radians.
(There are no phase shifts or vertical shifts).

9) $y = 2\sin \frac{1}{3}x$



a: 2
per: 6π
b = 3/2

10) $y = \frac{1}{2}\cos 2x$



a: 1/2
per: π
b = 2

11) The temperature T in degrees Fahrenheit of a city t months into the year is approximated by the formula $T = 42 + 30\sin\frac{\pi}{6} \cdot t$

- a. What is the highest monthly temperature for the city? 72°
 b. In what month does the highest temperature occur? 3^{rd} month March.
 c. What is the lowest monthly temperature for the city? 12°
 d. In what month does the lowest temperature occur? 9^{th} month September

Find the exact value of each trigonometric function.

- 12) $\cot -810^\circ = \cot 270^\circ = 0$ $\frac{-810}{+1080} = 270^\circ$
 13) $\csc 720^\circ = \csc 0^\circ$ (undefined)
 14) $\cos 540^\circ = \cos 180^\circ = -1$ $\frac{540}{-360} = 180$
 15) $\tan 210^\circ = \frac{\sqrt{3}}{3}$
 16) $\sec -30^\circ = \sec 330^\circ = \frac{2}{\sqrt{3}} + \frac{2\sqrt{3}}{3}$
 17) $\sin -150^\circ = \sin 210^\circ = -\frac{1}{2}$

Evaluate each trigonometric function. Give your answer in both radians and degrees.

$y = \sin^{-1} x; -\frac{\pi}{2} \leq y \leq \frac{\pi}{2}$ and $y = \sin^{-1} x; -90^\circ \leq y \leq 90^\circ$

$y = \tan^{-1} x; -\frac{\pi}{2} < y < \frac{\pi}{2}$ and $y = \tan^{-1} x; -90^\circ < y < 90^\circ$

$y = \cos^{-1} x; 0 \leq y \leq \pi$ and $y = \cos^{-1} x; 0^\circ \leq y \leq 180^\circ$

18) $\cos^{-1} -1 = 180^\circ; \pi$

19) $\sin^{-1} \frac{1}{2} = 30^\circ; \frac{\pi}{6}$

20) $\tan^{-1} -1 = -45^\circ; -\frac{\pi}{4}$

21) $\cos^{-1} \left(-\frac{\sqrt{2}}{2}\right) = 135^\circ; \frac{3\pi}{4}$

22) $\tan^{-1} 0 = 0^\circ$

23) $\sin^{-1} 1 = 90^\circ; \frac{\pi}{2}$

24) $\cos^{-1} \frac{1}{2} = 60^\circ; \frac{\pi}{3}$

25) $\tan^{-1} \sqrt{3} = 60^\circ; \frac{\pi}{3}$

26) $\sin^{-1} \left(-\frac{\sqrt{3}}{2}\right) = -60^\circ; -\frac{\pi}{3}$

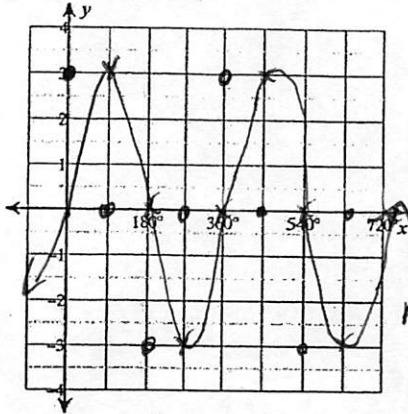
27) $\tan^{-1} \left(-\frac{\sqrt{3}}{3}\right) = -30^\circ; -\frac{\pi}{6}$

Chapter 11B Review

Graph the functions using degrees.

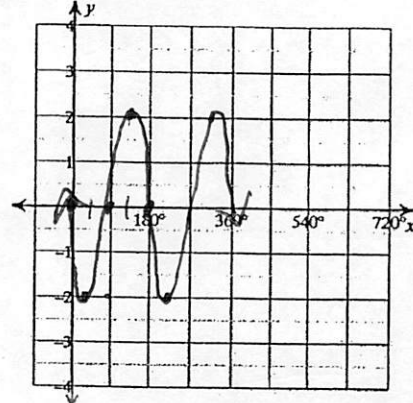
Identify the period, amplitude, phase shift, vertical shift, domain and range:

1) $y = 3\cos(x - 90^\circ)$



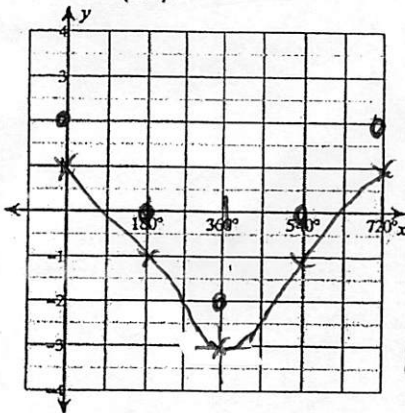
$a: 3$
 $p: 360^\circ$
 $p.s. 90^\circ \rightarrow$
 $v.s. none$
 $D: (-\infty, \infty)$
 $R: [-3, 3]$

2) $y = -2\sin 2x$



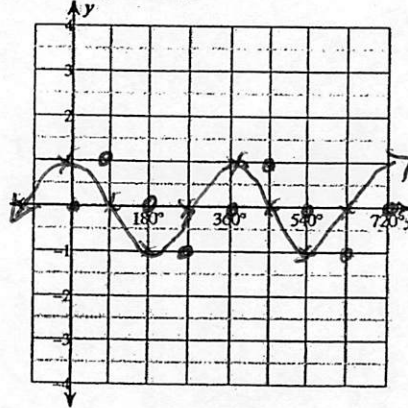
$a: 2$
 $p: \frac{360}{2} = 180^\circ$
 $p.s. none$
 $v.s. none$
 $D: (-\infty, \infty)$
 $R: [-2, 2]$

3) $y = 2\cos\left(\frac{1}{2}x\right) - 1$



$a: 2$
 $per: 720^\circ$
 $p.s. none$
 $v.s. down 1$
 $D: (-\infty, \infty)$
 $R: [-3, 1]$

4) $y = \sin(x + 90^\circ)$

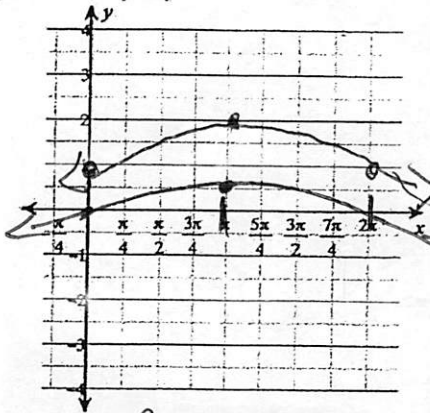


$a: 1$
 $p: 360^\circ$
 $p.s. 90^\circ \text{ left}$
 $v.s. none$
 $D: (-\infty, \infty)$
 $R:$

Graph the functions using radians.

Identify the period, amplitude, phase shift, vertical shift, domain and range:

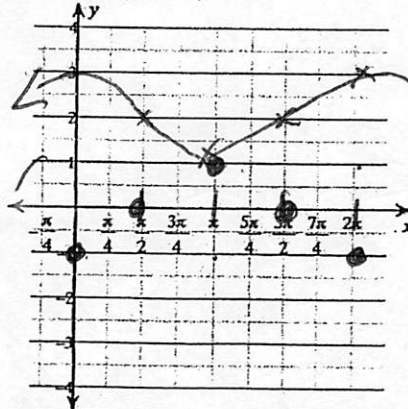
5) $y = \sin\left(\frac{1}{2}\theta\right) + 1$



$a: 1$
 $p: 4\pi$
 $p.s.: none$
 $v.s. up 1$
 $D: \mathbb{R}$
 $R: [0, 2]$

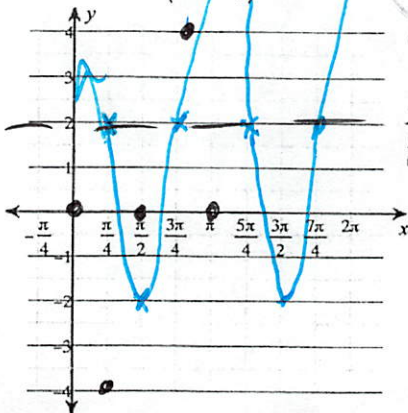
Can't graph one period on this graph.

6) $y = -\cos(\theta - \pi) + 2$



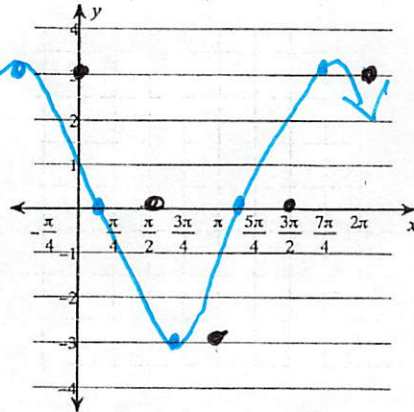
$a: 1$
 $p: 2\pi$
 $p.s. \pi \text{ right}$
 $v.s.: 2 \text{ up}$
 $D: (-\infty, \infty)$
 $R: [1, 3]$

7) $y = -4\sin 2 \cdot \left(\theta - \frac{\pi}{4}\right) + 2$



$a: 4$
 $p: \pi$
 P.S. $\frac{\pi}{4}$ right
 V.S. 2 up
 $D: (-\infty, \infty)$
 $R: [-2, 6]$

8) $y = 3\cos\left(\theta + \frac{\pi}{3}\right)$



$a: 3$
 $p: 2\pi$
 P.S. $\frac{\pi}{3}$ left
 V.S. none
 $D: (-\infty, \infty)$
 $R: [-3, 3]$

Match the function with the graph.

9) $y = 2\cos 3\theta + 2$ E

11) $y = 3\sin\left(\frac{\theta}{4} + \frac{\pi}{4}\right) + 2$ C

10) $y = -1 + 3\cos 2\theta$ D

12) $y = 3\sin\left(3\theta + \frac{\pi}{3}\right) + 1$ B

