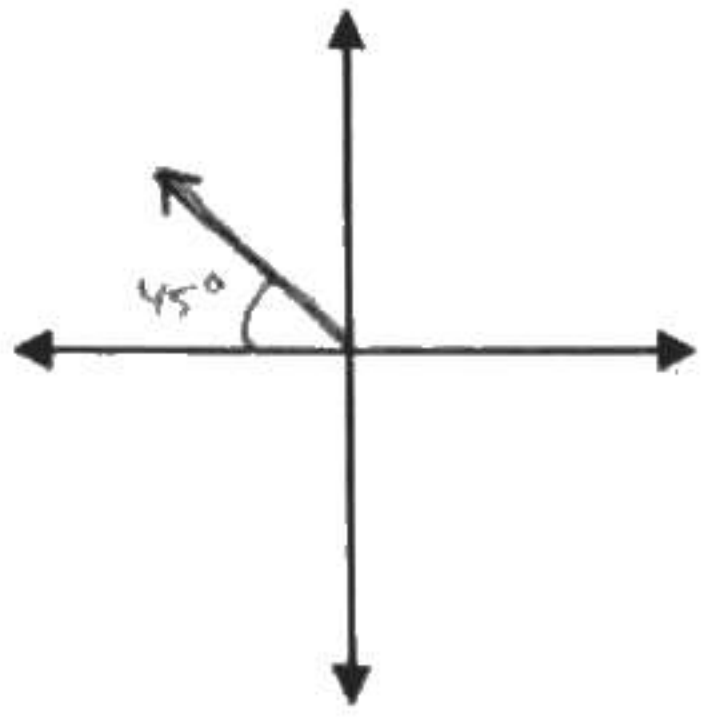
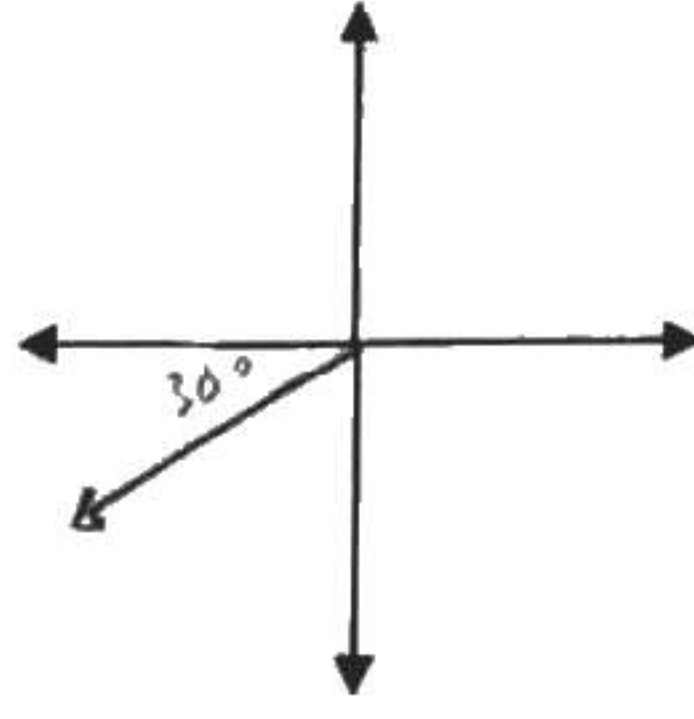
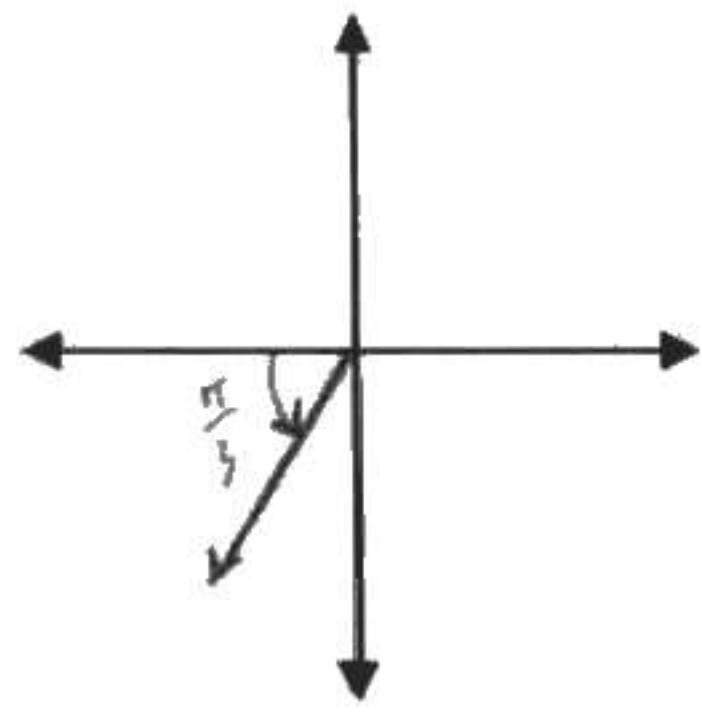
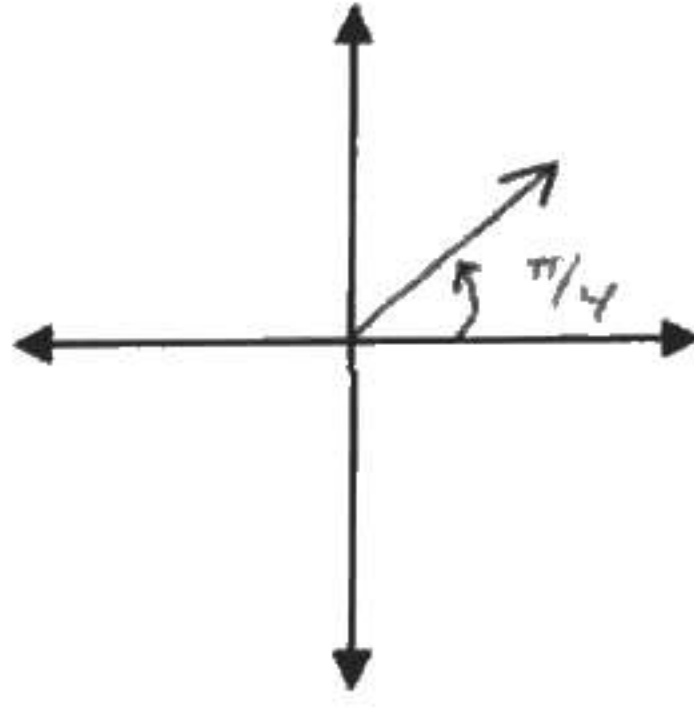


Review 3-2

M⁴ 7mm

Draw each angle in standard position. Label the reference angle.

<p>1NC. 135°</p> 	<p>2NC. -150°</p> 
<p>3NC. $\frac{4\pi}{3}$</p> 	<p>4NC. $\frac{17\pi}{4}$</p> <p>$\frac{17\pi}{4} - 2\left(\frac{8\pi}{4}\right) = \frac{\pi}{4}$</p> 

Convert each angle in degrees to radians. Express your answer as a multiple of π .

<p>5C. 330°</p> <p>$\frac{x}{2\pi} = \frac{330}{360}$</p> <p>$x = \frac{660\pi}{360}$</p> <p>$\frac{11\pi}{6}$</p>	<p>6C. -135°</p> <p>$\frac{x}{2\pi} = \frac{-135}{360}$</p> <p>$x = \frac{-270\pi}{360}$</p> <p>$-\frac{3\pi}{4}$</p>	<p>7C. 60°</p> <p>$\frac{x}{2\pi} = \frac{60}{360}$</p> <p>$x = \frac{120\pi}{360}$</p> <p>$\frac{\pi}{3}$</p>
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Convert each angle in radians to degrees.

<p>8C. $-\frac{2\pi}{3}$</p> <p>$\frac{x}{360} = \frac{-2\pi/3}{2\pi}$</p> <p>$2\pi x = -240$</p> <p>$x = \frac{-240\pi}{2\pi}$</p> <p>$-120^\circ$</p>	<p>9C. $\frac{5\pi}{3}$</p> <p>$\frac{x}{360} = \frac{5\pi/3}{2\pi}$</p> <p>$2\pi x = 600\pi$</p> <p>$x = \frac{600\pi}{2\pi}$</p> <p>$300^\circ$</p>	<p>10C. 5.24</p> <p>$\frac{x}{360} = \frac{5.24}{2\pi}$</p> <p>$2\pi x = 1886.4$</p> <p>$300.230^\circ$</p>
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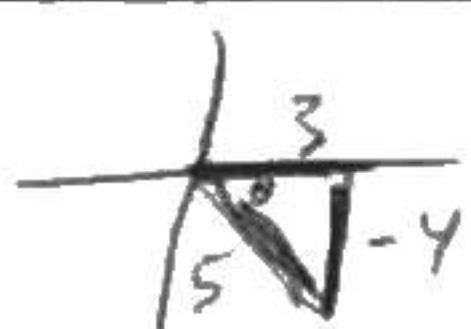

Find one positive and one negative co-terminal angle for each given angle.

<p>11C. 45°</p> <p>$45 + 360 = 405^\circ$</p> <p>$45 - 360 = -315^\circ$</p>	<p>12C. 127°</p> <p>$127 + 360 = 487^\circ$</p> <p>$127 - 360 = -233^\circ$</p>
<p>13C. $-\frac{2\pi}{3}$</p> <p>$-\frac{2\pi}{3} + \frac{6\pi}{3} = \frac{4\pi}{3}$</p> <p>$-\frac{2\pi}{3} - \frac{6\pi}{3} = -\frac{8\pi}{3}$</p>	<p>14C. $\frac{6\pi}{5}$</p> <p>$\frac{6\pi}{5} + \frac{10\pi}{5} = \frac{16\pi}{5}$</p> <p>$\frac{6\pi}{5} - \frac{10\pi}{5} = -\frac{4\pi}{5}$</p>

$P(x, y)$ is a point on the unit circle that corresponds to t . Find the exact values of the six trigonometric functions of t .

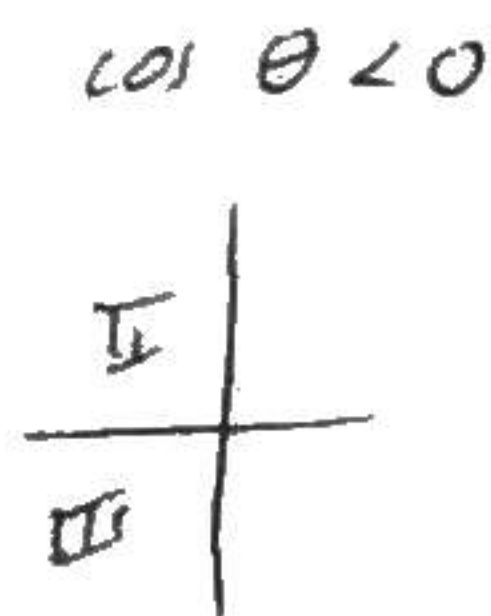
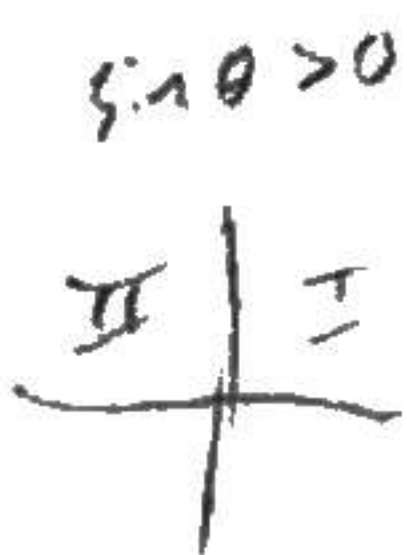
15C. $\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$	16C. $\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$
$\sin(t) = -\frac{1}{2}$	$\sin(t) = -\frac{\sqrt{2}}{2}$
$\csc(t) = -2$	$\csc(t) = -\frac{2}{\sqrt{2}} = -\sqrt{2}$
$\cos(t) = -\frac{\sqrt{3}}{2}$	$\cos(t) = -\frac{\sqrt{2}}{2}$
$\sec(t) = -\frac{2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$	$\sec(t) = -\frac{2}{\sqrt{2}} = -\sqrt{2}$
$\tan(t) = -\frac{1}{2} \left(-\frac{2}{\sqrt{3}}\right) = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$	$\tan(t) = -\frac{\sqrt{2}}{2} \left(-\frac{2}{\sqrt{2}}\right) = 1$
$\cot(t) = \frac{3}{\sqrt{3}} = \sqrt{3}$	$\cot(t) = 1$

A point on the terminal side of the angle θ is given. Find the exact values of the six trigonometric functions of θ .

17C. $(3, -4)$	18C. $(-12, -5)$
	
$\sin(t) = -\frac{4}{5}$	$\sin(t) = -\frac{5}{13}$
$\csc(t) = -\frac{5}{4}$	$\csc(t) = -\frac{13}{5}$
$\cos(t) = \frac{3}{5}$	$\cos(t) = -\frac{12}{13}$
$\sec(t) = \frac{5}{3}$	$\sec(t) = -\frac{13}{12}$
$\tan(t) = -\frac{4}{3}$	$\tan(t) = \frac{-5}{-12} = \frac{5}{12}$
$\cot(t) = -\frac{3}{4}$	$\cot(t) = \frac{12}{5}$

19NC. Determine in which quadrant(s) the following statement holds true:

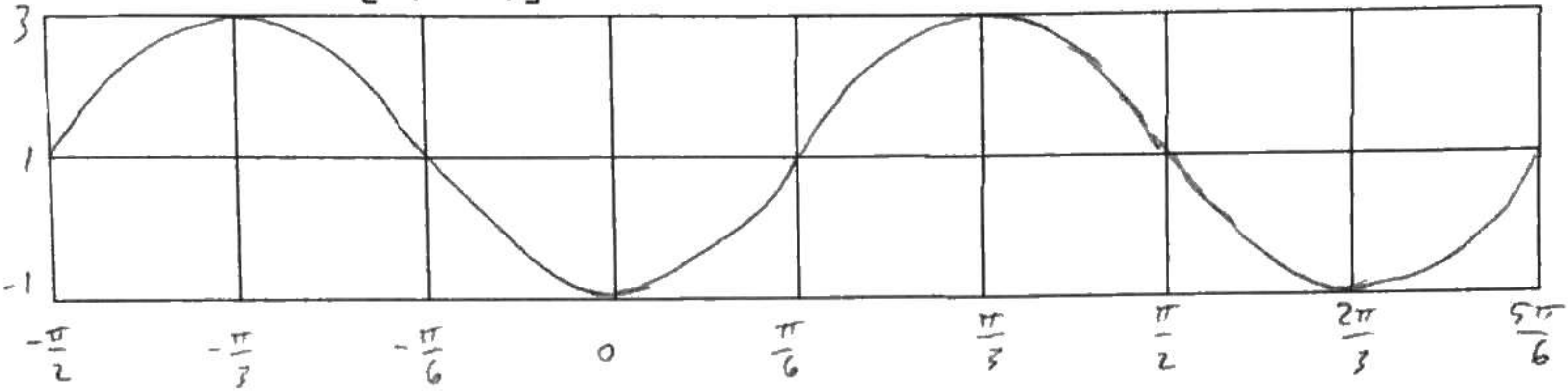
$$\sin\theta > 0 \text{ and } \cos\theta < 0$$



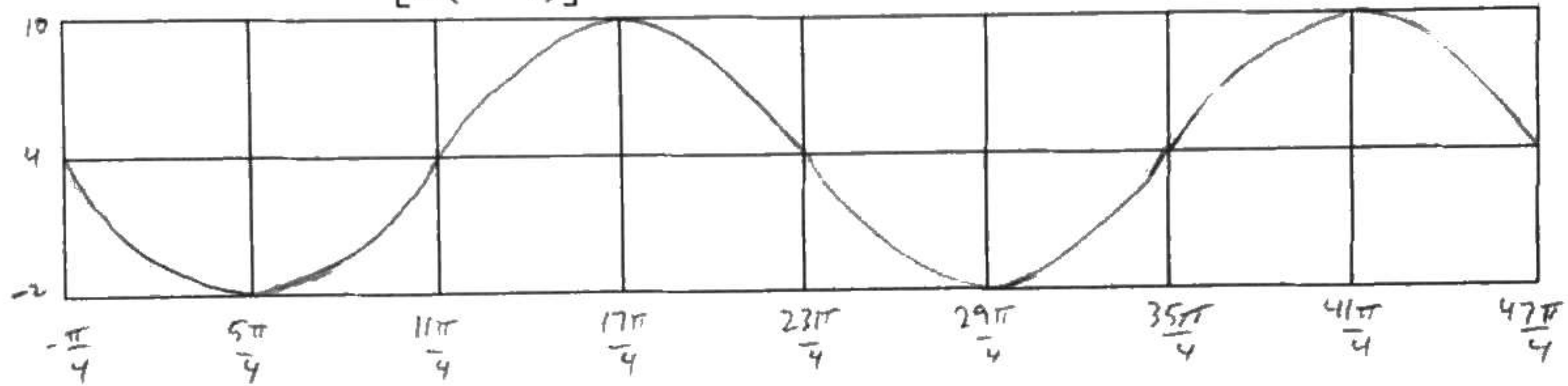
Quadrant II

Graph the following functions:

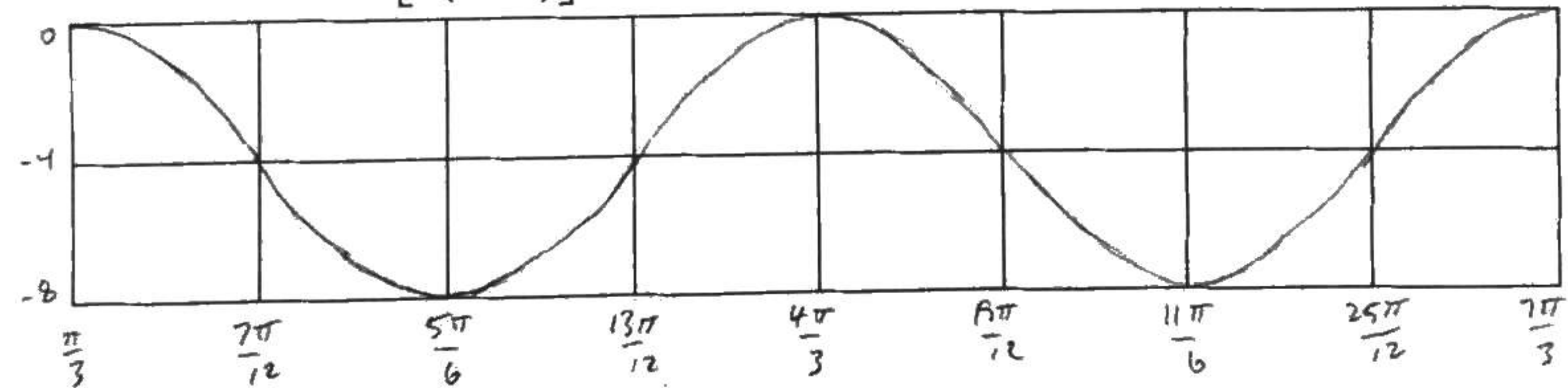
20NC. $y = 2\sin\left[3\left(x + \frac{\pi}{2}\right)\right] + 1$ x-scale: $\frac{\pi}{2}\left(\frac{1}{3}\right) = \frac{\pi}{6}$



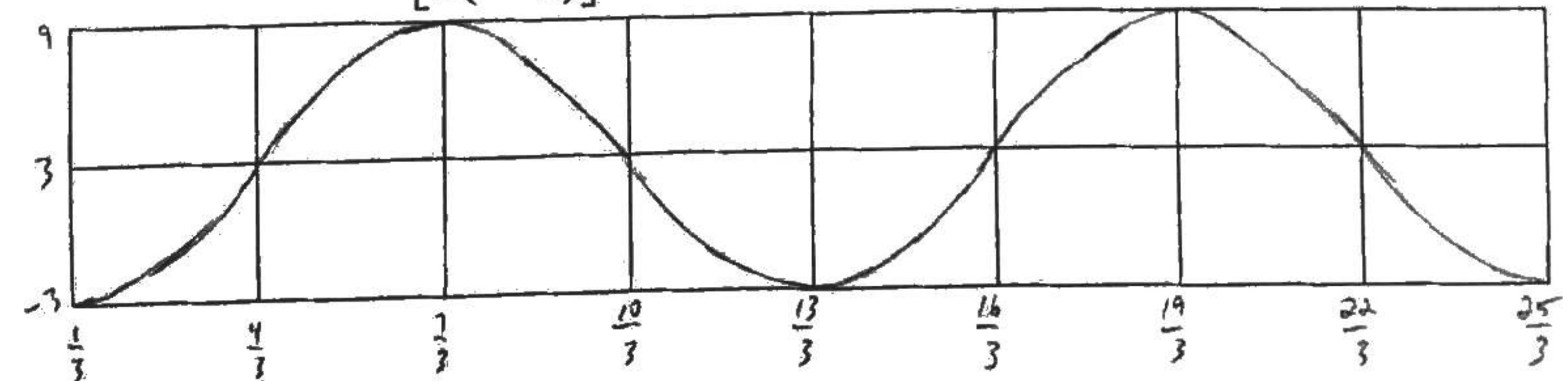
21NC. $y = -6\sin\left[\frac{1}{3}\left(x + \frac{\pi}{4}\right)\right] + 4$ y-scale: $\frac{\pi}{2}\left(\frac{3}{1}\right) = \frac{3\pi}{2}$



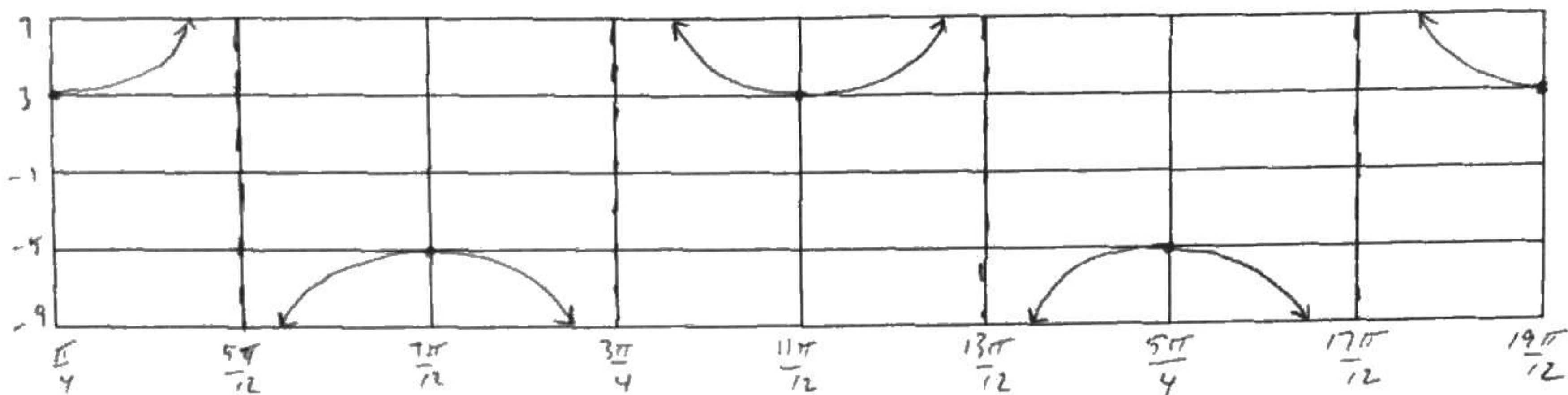
22NC. $y = 4\cos\left[2\left(x - \frac{\pi}{3}\right)\right] - 4$ x-scale: $\frac{\pi}{2}\left(\frac{1}{2}\right) = \frac{\pi}{4}$



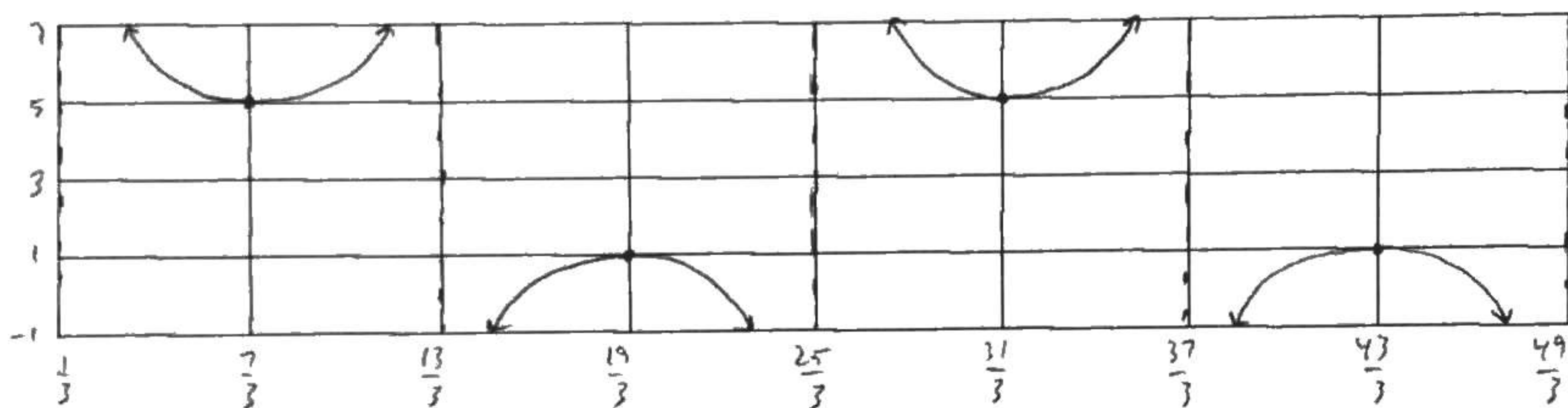
23NC. $y = -6\cos\left[\frac{\pi}{2}\left(x - \frac{1}{3}\right)\right] + 3$ x-scale: $\frac{\pi}{2}\left(\frac{2}{\pi}\right) = 1$



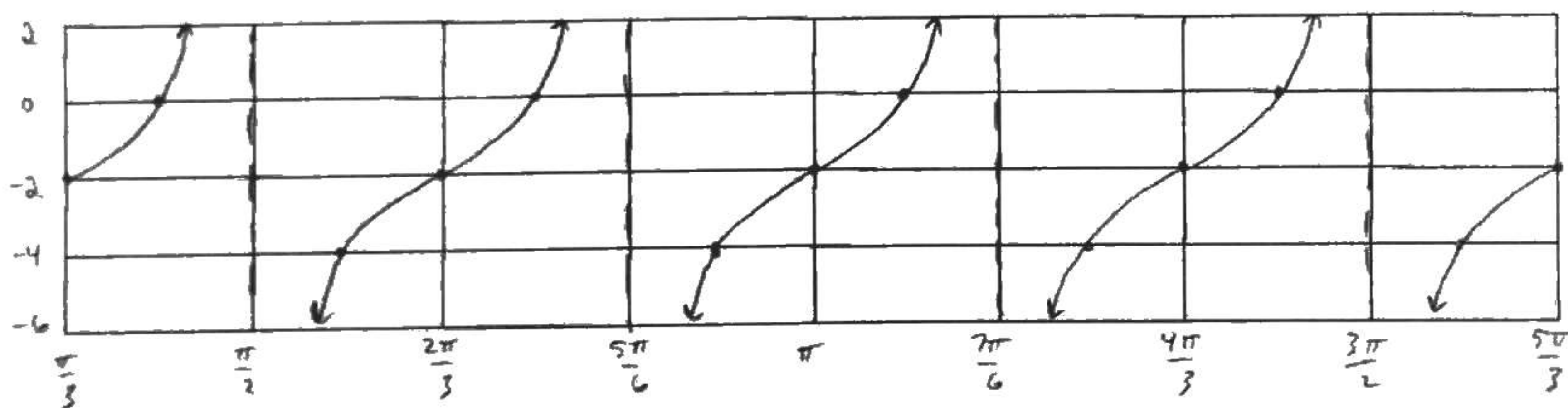
24NC. $y = 4 \sec \left[3 \left(x - \frac{\pi}{4} \right) \right] - 1$ x-scale: $\frac{\pi}{2} \left(\frac{1}{3} \right) = \frac{\pi}{6}$



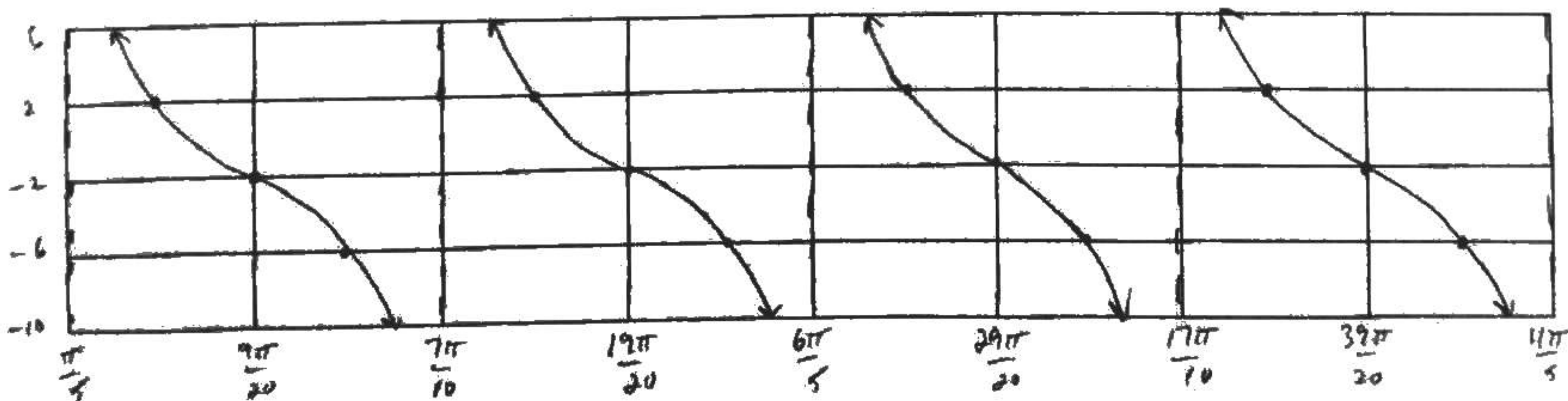
25NC. $y = 2 \csc \left[\frac{\pi}{4} \left(x - \frac{1}{3} \right) \right] + 3$ x-scale: $\frac{\pi}{2} \left(\frac{4}{\pi} \right) = 2$

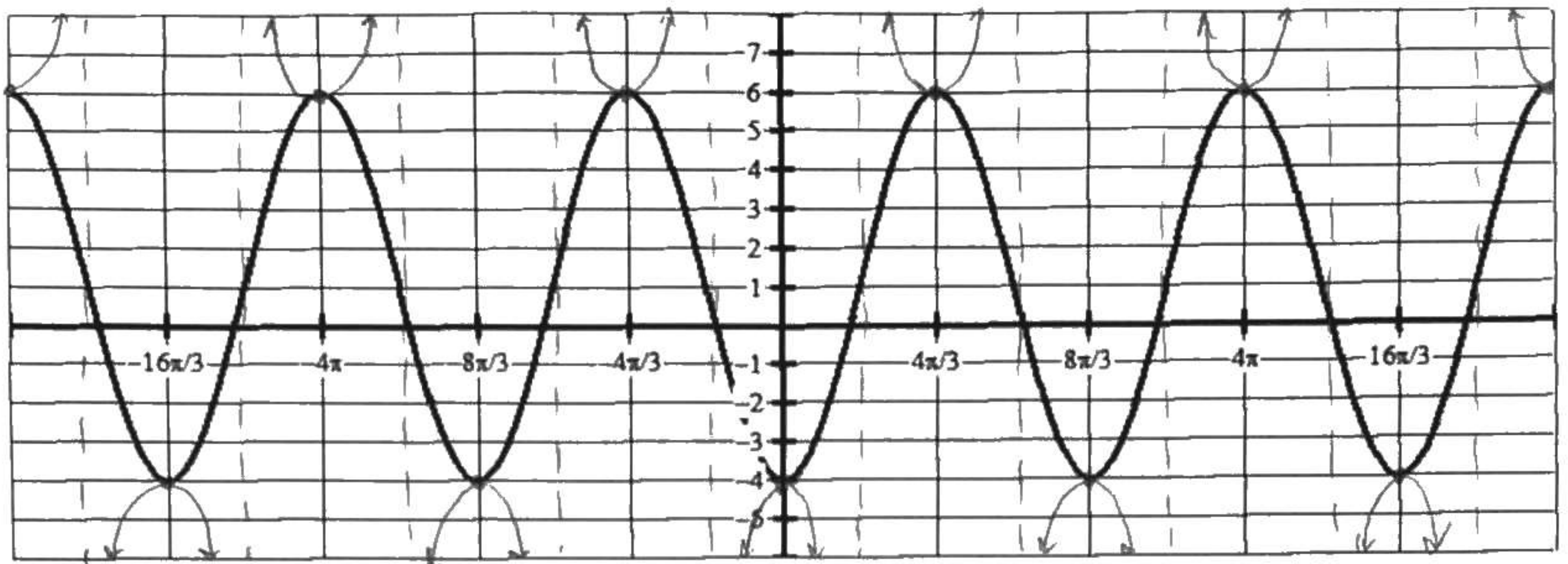


26NC. $y = 2 \tan \left[3 \left(x - \frac{\pi}{3} \right) \right] - 2$ x-scale: $\frac{\pi}{2} \left(\frac{1}{3} \right) = \frac{\pi}{6}$



27NC. $y = 4 \cot \left[2 \left(x - \frac{\pi}{5} \right) \right] - 2$ x-scale: $\frac{\pi}{2} \left(\frac{1}{2} \right) = \frac{\pi}{4}$





28NC. Write the equations of the function that defines the graph as cosine and sine functions with a positive amplitude and the first non-negative phase shifts.

$$P = \frac{4\pi}{3} - (-\frac{4\pi}{3}) \quad B = \frac{2\pi}{1} \left(\frac{3}{2\pi} \right) \quad y = 5 \cos \left[\frac{3}{4} \left(x - \frac{4\pi}{3} \right) \right] + 1$$

$$P = \frac{8\pi}{3} \quad B = \frac{3}{4} \quad y = 5 \sin \left[\frac{3}{4} \left(x - \frac{2\pi}{3} \right) \right] + 1$$

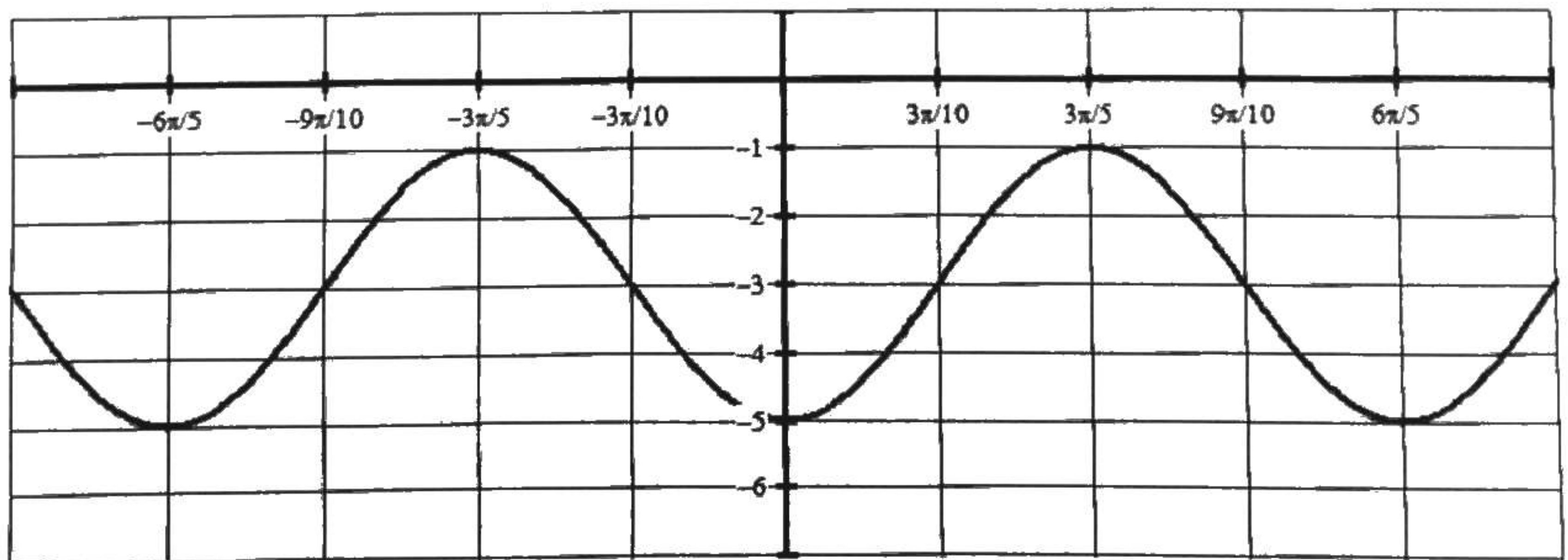
29NC. Sketch the graph of the reciprocal function. Write the equations for the reciprocal function.

(Graph shown above)

$$y = 5 \sec \left[\frac{3}{4} \left(x - \frac{4\pi}{3} \right) \right] + 1$$

$$y = 5 \csc \left[\frac{3}{4} \left(x - \frac{2\pi}{3} \right) \right] + 1$$

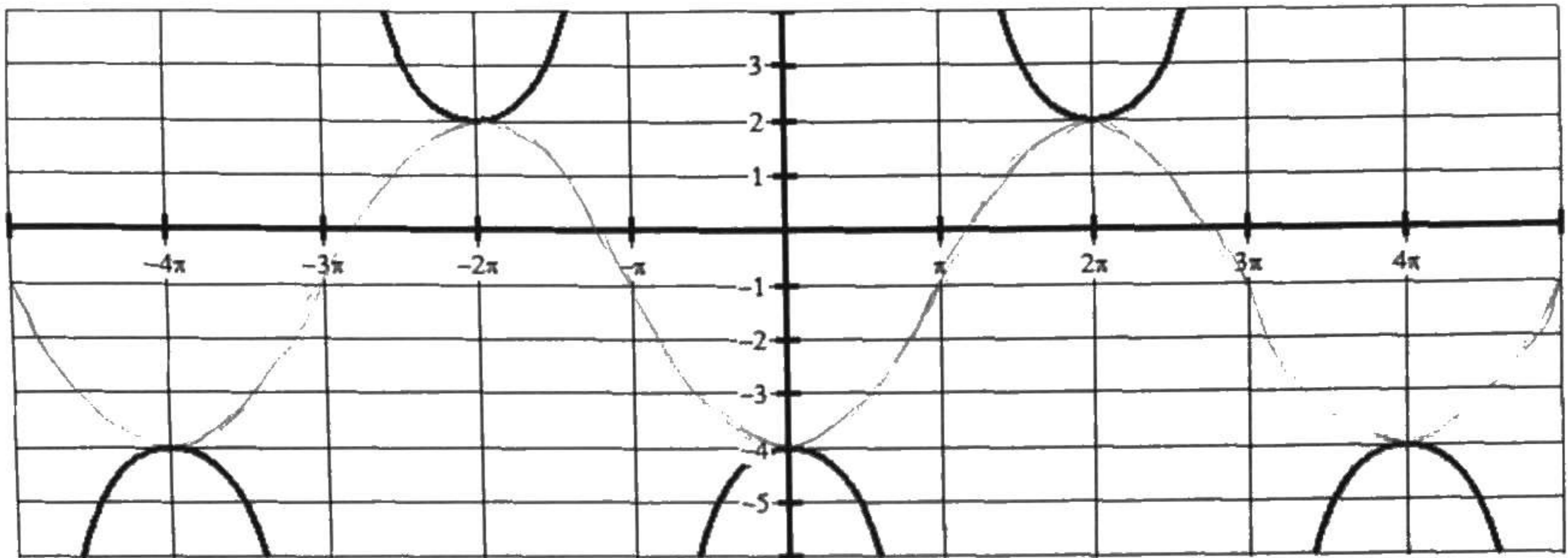
30C. Write the sine and cosine equations for the following graph:



$$P = \frac{3\pi}{5} - (-\frac{3\pi}{5}) \quad B = \frac{2\pi}{1} \left(\frac{5}{6\pi} \right) \quad y = 2 \sin \left[\frac{5}{3} \left(x - \frac{3\pi}{10} \right) \right] - 3$$

$$P = \frac{6\pi}{5} \quad B = \frac{5}{3} \quad y = 2 \cos \left[\frac{5}{3} \left(x - \frac{3\pi}{5} \right) \right] - 3$$

31C. Write the secant and cosecant equations for the following graph:

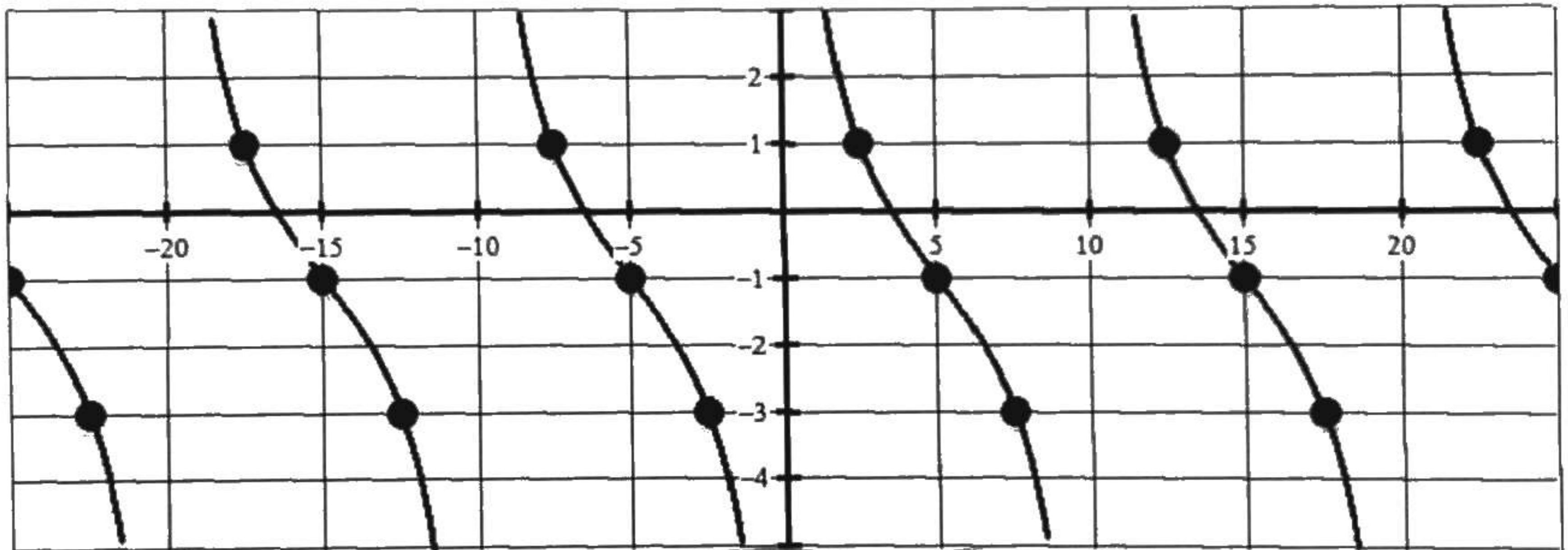


$p = 2\pi \cdot (-2\pi)$ $B = \frac{2\pi}{4\pi}$
 $p = 4\pi$ $B = \frac{1}{2}$

$$y = 3 \sec \left[\frac{1}{2}(x - 2\pi) \right] - 1$$

$$y = 3 \csc \left[\frac{1}{2}(x - \pi) \right] - 1$$

31C. Write the tangent and cotangent equations for the following graph:



$p = 10 - 0$ $B = \frac{\pi}{10}$
 $p = 10$

$$y = -2 \tan \left[\frac{\pi}{10}(x - 5) \right] - 1$$

$$y = 2 \cot \left(\frac{\pi}{10}x \right) - 1$$

Evaluate each of the following without looking at a completed unit circle:

<p>32NC. $\sin\left(\frac{2\pi}{3}\right)$ $\frac{\sqrt{3}}{2}$</p>	<p>33NC. $\cos\left(\frac{23\pi}{6}\right)$ $\frac{\sqrt{3}}{2}$ $\cos\left(\frac{23\pi}{6} - \frac{12\pi}{6}\right) = \cos\left(\frac{11\pi}{6}\right)$</p>
<p>34NC. $\tan\left(\frac{\pi}{2}\right)$ Undefined</p>	<p>35NC. $\csc\left(\frac{5\pi}{6}\right)$ 2 $\sin\left(\frac{5\pi}{6}\right) = \frac{1}{2}$</p>
<p>36NC. $\cot\left(\frac{7\pi}{3}\right)$ $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ $\tan\left(\frac{7\pi}{3} - \frac{6\pi}{3}\right) = \tan\left(\frac{\pi}{3}\right) = \sqrt{3}$</p>	<p>37NC. $\sec\left(\frac{7\pi}{6}\right)$ $-\frac{2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$ $\cos\left(\frac{7\pi}{6}\right) = -\frac{\sqrt{3}}{2}$</p>