

1. Express 250° in radians

$$250^\circ \left(\frac{\pi \text{ rads}}{180^\circ} \right) = \frac{250\pi}{180} = \boxed{\frac{25\pi}{18}}$$

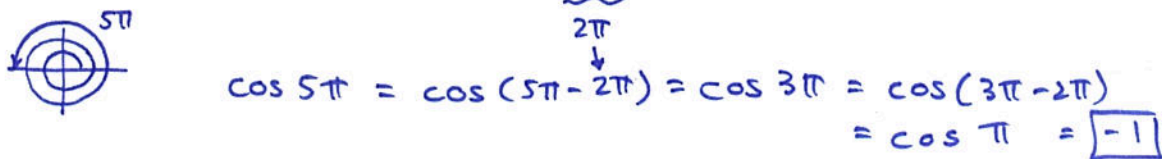
2. Express $7\pi/3$ in degrees

$$\left(\frac{7\pi}{3} \right) \left(\frac{180^\circ}{\pi \text{ rads}} \right) = \frac{7(180)\pi}{3\pi} = 7(60) = \boxed{420^\circ}$$

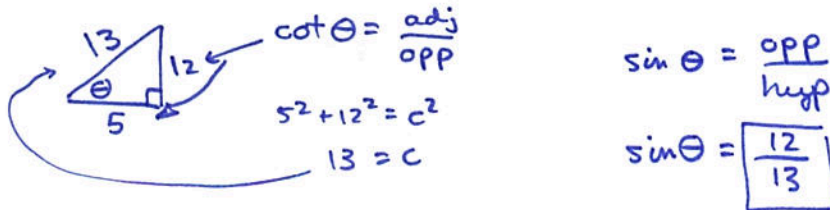
3. What is the coordinate of the point on the terminal side of $5\pi/6$



4. Evaluate the trigonometric function using its period as an aid: $\cos 5\pi$



5. Given $\cot \theta = 5/12$ and $\cos \theta > 0$, find $\sin \theta$

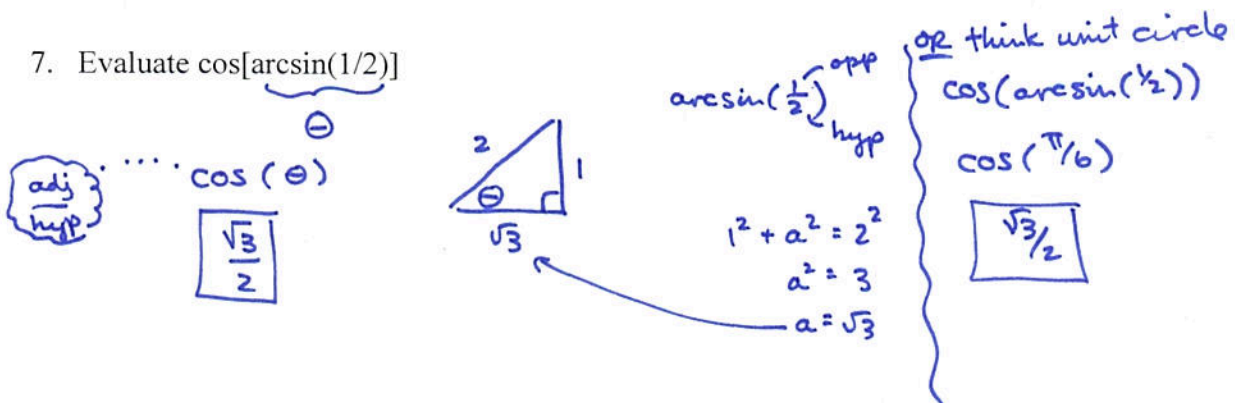


6. Find the amplitude and period of $y = 3.25 \cos 3x$

amp = $|a| = \boxed{3.25}$

period = $\frac{2\pi}{|b|} = \boxed{\frac{2\pi}{3}}$

7. Evaluate $\cos[\arcsin(1/2)]$



8. Find a, b, c and d for $f(x) = d + a \cos (bx - c)$ so that the function matches the graph

vertical shift up 3 units

$$d = 3$$

amplitude = 3

$$a = 3$$

$$\text{period} = \frac{2\pi}{|b|} = 2\pi$$

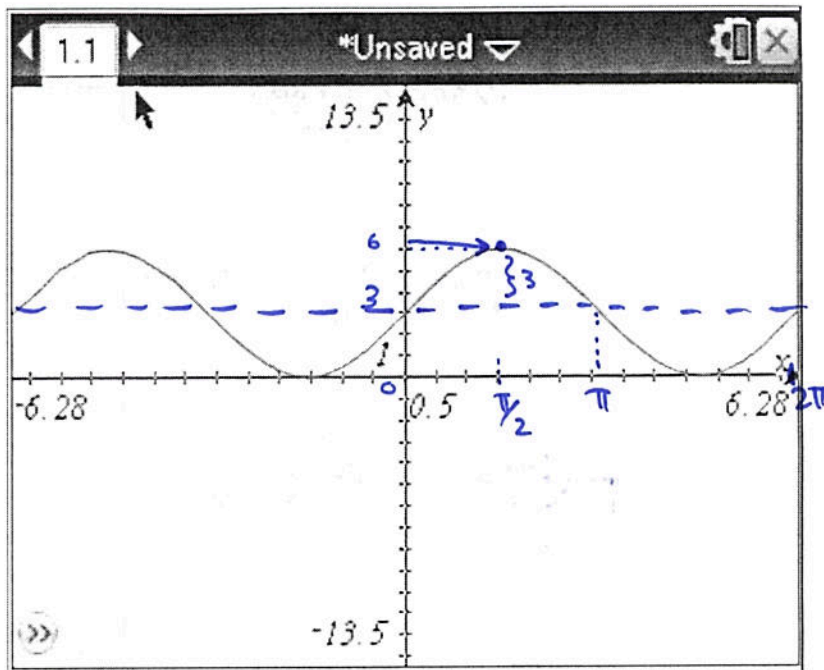
$$2\pi = 2\pi b$$

$$1 = b$$

horizontal shift right $\frac{\pi}{2}$
(phase)

$$f(x) = 3(\cos(x - \frac{\pi}{2})) + 3$$

$$f(x) = 3 + 3\cos(x - \frac{\pi}{2})$$



$$2\pi = 6.28318$$

9. Find the amplitude and period of the function graphed at the right:

$$\text{Amp} = \underline{3}$$

$$\text{Period} = \underline{4\pi}$$

$$\text{amp} = 3 = a$$

$$\text{period} = \frac{2\pi}{b} = 4\pi$$

$$2\pi = 4\pi b$$

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

no vertical shift

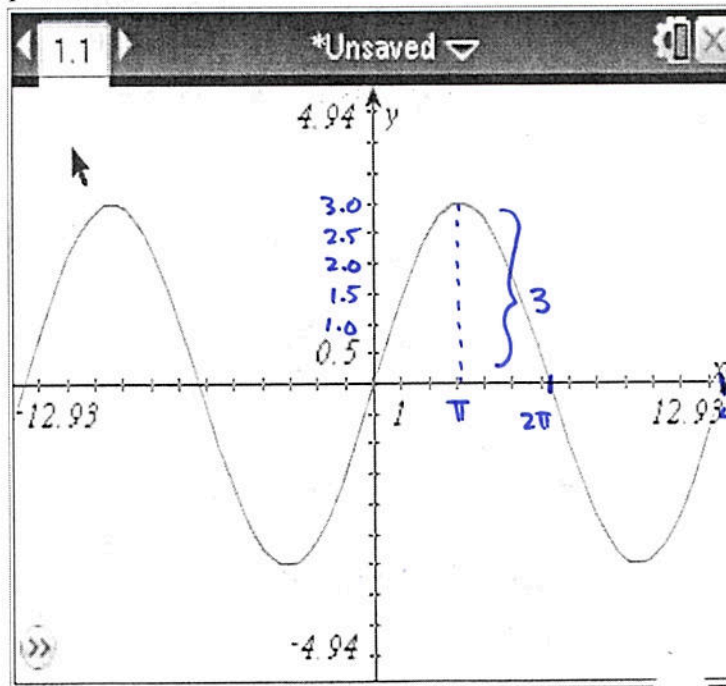
phase shift for $\cos x \rightarrow \pi$ units right

10. Write the equation of the function whose graph is at the right.

$$f(x) = 3\sin(\frac{1}{2}x)$$

$$\text{or } f(x) = 3\cos(\frac{1}{2}(x - \pi))$$

$$= 3\cos(\frac{1}{2}x - \frac{\pi}{2})$$



$$2\pi = 6.28318$$

11. Determine the quadrant of the following: $\frac{13\pi}{3}$

$$\frac{13\pi}{3} - 2\pi$$

$$\frac{7\pi}{3} - 2\pi$$

$$\frac{13\pi}{3} - \frac{6\pi}{3} = \frac{7\pi}{3}$$

$$\frac{7\pi}{3} - \frac{6\pi}{3} = \frac{\pi}{3}$$

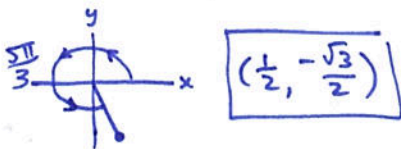
Quadrant I

12. Express the following in radians: 445°

$$445^\circ \left(\frac{\pi \text{ rad}}{180^\circ} \right) = \frac{445\pi}{180} = \frac{89\pi}{36}$$

13. Find the point (a,b) on the unit circle that corresponds to the real number t: $t = \frac{5\pi}{3}$

Then find sine, cosine and tangent.

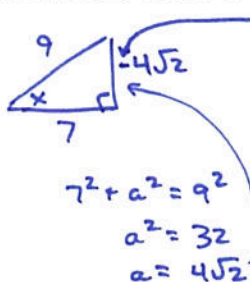


$$\sin\left(\frac{5\pi}{3}\right) = \frac{-\sqrt{3}}{2}$$

$$\cos\left(\frac{5\pi}{3}\right) = \frac{1}{2}$$

$$\tan\left(\frac{5\pi}{3}\right) = \frac{\sin\left(\frac{5\pi}{3}\right)}{\cos\left(\frac{5\pi}{3}\right)} = \frac{-\sqrt{3}/2}{1/2} = \frac{-\sqrt{3}}{2} \cdot \frac{2}{1} = -\sqrt{3}$$

14. Find $\cot x$: If $\cos x = 7/9$, $\sin x < 0$



$$\cot x = \frac{\cos x}{\sin x} \quad \text{or} \quad \frac{\text{adj}}{\text{opp}} \dots \text{smiley face}$$

$$= -\frac{7}{4\sqrt{2}}$$

15. Find an algebraic expression that is equivalent to the expression below

$$\cot(\arcsin(5x/7))$$

$$\dots \cot(\theta)$$

adj opp

$$\frac{\sqrt{49-25x^2}}{5x}$$



$\arcsin\left(\frac{5x}{7}\right)$ opp hyp

$$a^2 + (5x)^2 = 7^2$$

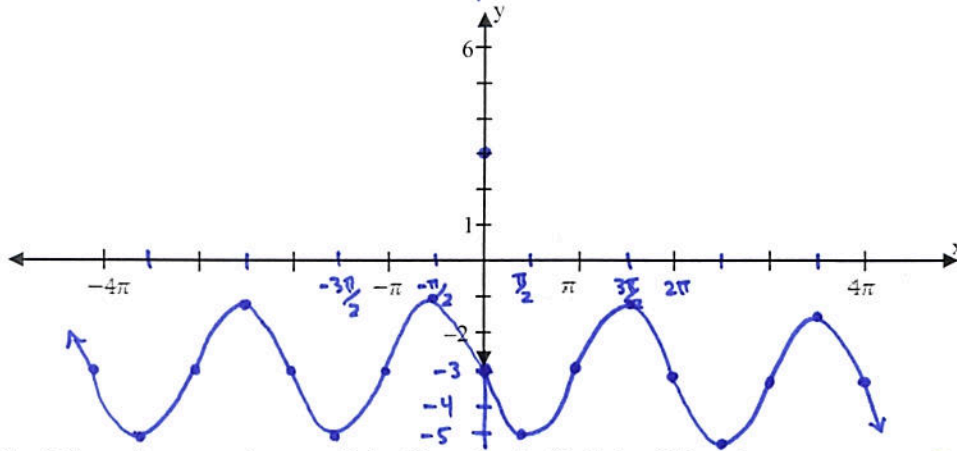
$$a^2 = 49 - 25x^2$$

$$a = \sqrt{49 - 25x^2}$$

16. Sketch the graph. Show TWO (2) full periods

$$f(x) = -2\sin(x) - 3$$

vertical shift down 3 units
amplitude = 2
reflect over x-axis



17. Given the equation $y = 2\sin(3x - \pi) - 5$, find the following $\rightarrow y = 2\sin(3(x - \pi/3)) - 5$

Amplitude: $a = \boxed{2}$

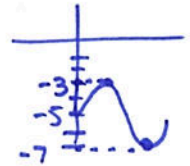
Period: $\frac{2\pi}{6} = \boxed{\frac{2\pi}{3}}$

Horizontal Shift: $\boxed{\text{right } \frac{\pi}{3} \text{ units}}$

Vertical Shift: $\boxed{\text{down 5 units}}$

Domain: $\boxed{(-\infty, \infty)}$

Range: $\boxed{[-7, -3]}$



18. Evaluate $\csc 17.2^\circ$

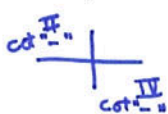
$\boxed{3.382}$

19. Find the amplitude and period $2\sin\frac{x\pi}{3} = 2\sin(\frac{\pi}{3}x)$

Amp = $\boxed{2}$

Period = $\frac{2\pi}{6} = \frac{2\pi}{\pi/3} = 2\pi \cdot \frac{3}{\pi} = \boxed{6}$

20. Approximate TWO values of θ ($0^\circ \leq \theta < 360^\circ$) that satisfies the equation. Round to three decimal places.



$\cot \theta = -0.5$

$\theta = \cot^{-1}(-0.5)$

$\theta = \boxed{116.565^\circ}$

$\theta = 180 + 116.565^\circ$

$= \cancel{63} \boxed{296.565^\circ}$

21. Evaluate with a calculator: $\sin(2\pi/3)$

$\frac{\sqrt{3}}{2} = \boxed{.866}$