

MATH 150 - WEEK-IN-REVIEW 10

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PROBLEM STATEMENTS

1. Given $\sin(\theta) = -\frac{5}{7}$ and $\tan(\theta) > 0$, find $\tan(\theta)$ and $\sec(\theta)$.

2. Use the function value to find the indicated trigonometric value in the specified quadrant.

Function Value: $\sec \theta = -\frac{61}{11}$ **Quadrant:** III **Trigonometric Function:** $\cot \theta$

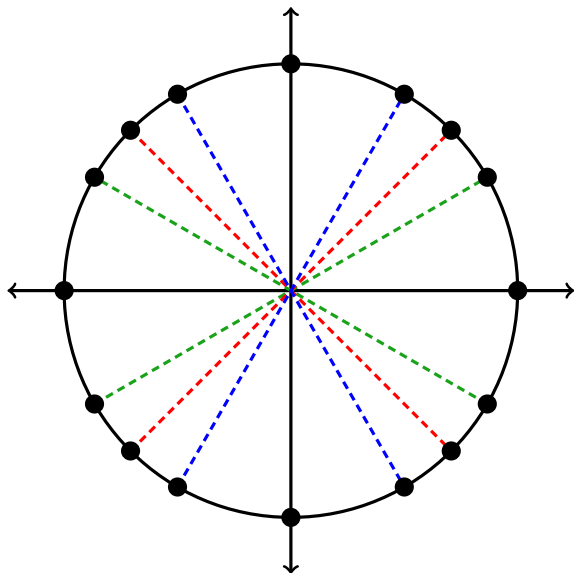
3. Given $\sin \theta = \frac{4}{7}$ and θ in Quadrant I, use the trigonometric identities to find the exact value of each:

a. $\cos(\theta) =$

b. $\cot(\theta) =$

c. $\csc(\theta) =$

d. $\tan(90^\circ - \theta) =$



4. Evaluate the following:

a) $\sin \frac{4\pi}{3}$

a) $\sin 315^\circ$

b) $\cos \frac{4\pi}{3}$

b) $\cos 315^\circ$

c) $\tan \frac{4\pi}{3}$

c) $\tan 315^\circ$

d) $\cot \frac{4\pi}{3}$

d) $\cot 315^\circ$

e) $\sec \frac{4\pi}{3}$

e) $\sec 315^\circ$

f) $\csc \frac{4\pi}{3}$

f) $\csc 315^\circ$

5. Given $y = 3 \sin(4x + \pi)$, describe the period, amplitude, and phase shift of the graph. Then graph the function.

Amplitude:

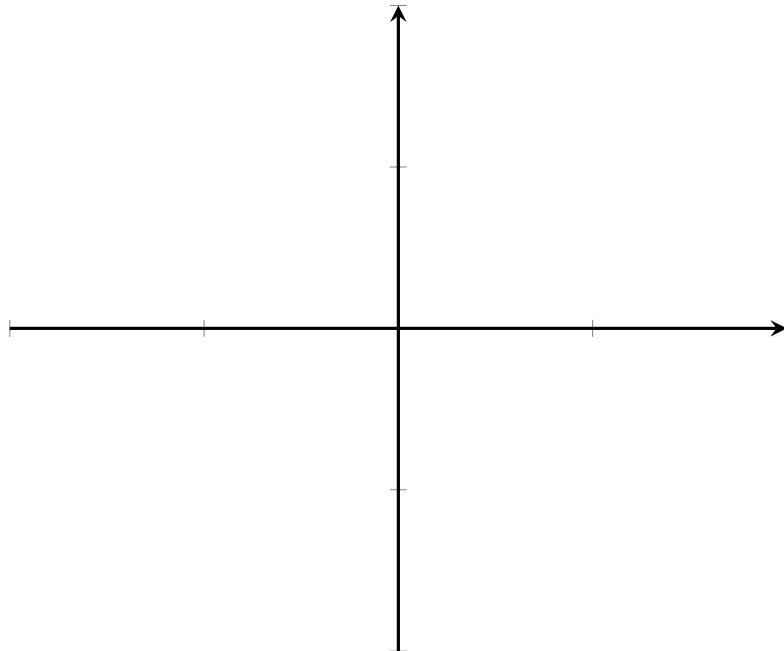
Period Endpoints

Start:

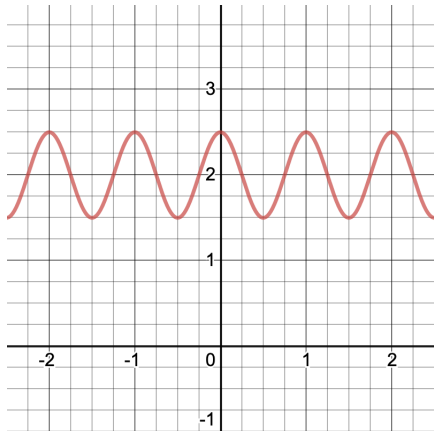
End:

Period:

Phase Shift:



6. Given the graph, write the equation of the cosine function which matches the graph.



7. Graph one cycle of the function $y = 1 + \sec\left(\frac{t}{2}\right)$ and state its period.

8. Evaluate each:

<p>a. $\arcsin\left(\frac{\sqrt{2}}{2}\right) =$</p> <p>b. $\arcsin(3) =$</p> <p>c. $\arcsin\left(-\frac{\sqrt{3}}{2}\right) =$</p> <p>d. $\arcsin(-1) =$</p>	<p>a. $\arccos\left(-\frac{\sqrt{2}}{2}\right) =$</p> <p>b. $\arccos\left(\frac{1}{2}\right) =$</p> <p>c. $\arccos(1) =$</p> <p>d. $\arccos(-2) =$</p>
<p>a. $\arctan(-\sqrt{3}) =$</p> <p>b. $\arctan(3) =$</p> <p>c. $\arctan(-1) =$</p> <p>d. $\arctan\left(\frac{5}{2}\right) =$</p>	<p>Reminders:</p> <ul style="list-style-type: none"> • Domain $\arcsin x = [-1, 1]$, Range $\arcsin x = \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ • Domain $\arccos x = [-1, 1]$, Range $\arccos x = [0, \pi]$ • Domain $\arctan x = (-\infty, \infty)$, Range $\arctan x = \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$



9. Evaluate each of the following:

(a) $\arccos\left(\sin\left(\frac{11\pi}{6}\right)\right)$

(b) $\arccos\left(\sin\left(\frac{3\pi}{4}\right)\right)$

(c) $\sin\left(\arctan\left(-\frac{\sqrt{3}}{3}\right)\right)$

(d) $\cos\left(\arcsin\left(-\frac{8}{17}\right)\right)$

(e) $\cos(\arccos(2))$

10. Write an algebraic expression that is equivalent to:

a. $\tan(\arcsin(5x))$

b. $\csc\left(\arccos\left(\frac{x}{2}\right)\right)$.

11. Find all solutions to $\sqrt{3}\csc(x) + 3 = 1$ then state the solutions that are in the interval $[0, 2\pi)$.
12. Find all solutions to the equation $2\sin^2(3x) - 1 = 0$ then state the solutions that are in the interval $[0, \pi)$.



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13. Find all solutions for $80 \cos\left(\frac{\pi}{3}x + \frac{\pi}{4}\right) - 40\sqrt{2} = 0$ then state the solutions that are in the interval $[0, 5)$.