Precalculus
Test Review 4.5-4.8 (Day 2)

Name:_____
Date:_____ Period:_____

1. A plane flies 62m east and 20m south from an airport. The pilot flies directly back to the airport. What bearing should he take? What bearing would a ship take? Round to the nearest tenth of a degree.

2. A ship is 90 miles south and 20 miles east of port. If the captain wants to travel directly to port, what bearing should be taken?

a) S 77.5° E b) N 12.5° W c) N 77.5° E d) S 12.5° W e) None of these

3. Evaluate: $\arctan(1)$

a) $\frac{\pi}{4}$ b) $-\frac{\pi}{4}$ c) $\frac{3\pi}{4}$ d) $\frac{7\pi}{4}$ e) None of these

4. Evaluate: $\sin\left(\arctan\frac{x}{5}\right)$

a) $\frac{x}{x+5}$ b) $\frac{x}{\sqrt{x^2+25}}$ c) $\frac{5}{\sqrt{x^2+25}}$ d) $\frac{\sqrt{25-x^2}}{5}$ e) None of these

5. Evaluate: $\arcsin\left(\sin\frac{3\pi}{2}\right)$

a) $\frac{\pi}{2}$ b) $-\frac{\pi}{2}$ c) $\frac{3\pi}{2}$ d) $-\frac{3\pi}{2}$ e) None of these

6. Evaluate: $\tan\left(\arccos\left(-\frac{4}{5}\right)\right)$

a) $-\frac{4}{3}$ b) $\frac{4}{3}$ c) $-\frac{3}{4}$ d) $\frac{3}{4}$ e) None of these

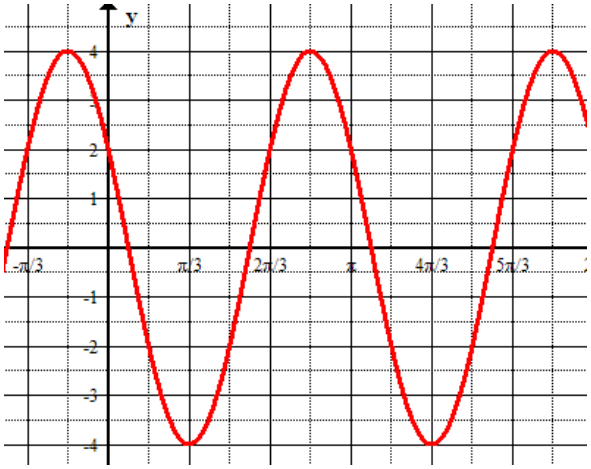
7. Determine the period: $f(x)=-\frac{2}{3}\cos\left(\frac{x}{3}-\frac{1}{2}\right)$

a) 6π b) $\frac{2\pi}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{2}$ e) None of these

8. Which of the following is a vertical asymptote to the graph of $f(x)=\csc 3x$?

a) $x=\frac{\pi}{2}$ b) $x=\frac{3\pi}{2}$ c) $x=\frac{\pi}{3}$ d) $x=\frac{\pi}{4}$ e) None of these

9. Match the graph with the correct function.

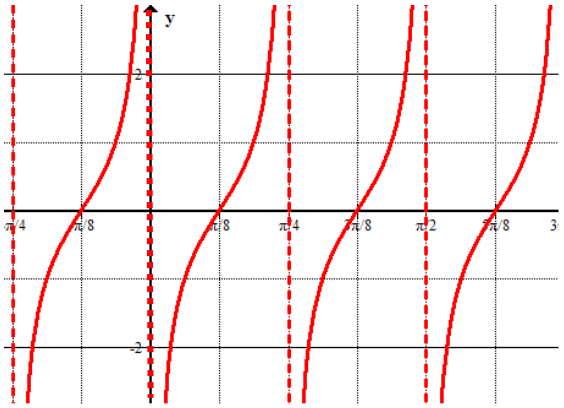


a) $y=4\cos\left(3x-\frac{\pi}{2}\right)$ b) $y=4\cos\left(3x+\frac{\pi}{6}\right)$

c) $y=4\sin\left(2x-\frac{\pi}{3}\right)$ d) $y=4\cos\left(2x+\frac{\pi}{3}\right)$

e) None of these

10. Match the correct function with the graph.



a) $y=\cot\left(x-\frac{\pi}{4}\right)$ b) $y=\tan\left(x-\frac{\pi}{4}\right)$

c) $y=-\cot(4x)$ d) $y=\tan(4x)$

e) None of these

11. For given function $f(x)=-2\sec(\frac{\pi}{6}x+\frac{\pi}{3})+5$ find:

a) The phase shift _____

b) The range: _____

c) The period: _____

d) The amplitude: _____

e) All vertical asymptotes on $[-2,10]$:_____

12. Sketch at least one full period. (show all work)

a. $f(x)=4+\sin\left(2x-\frac{\pi}{6}\right)$ b. $g(x)=-2\cos\frac{\pi}{10}x+3$

c. $h(x)=-\tan(3x+\pi)$ d. $k(x)=\frac{3}{8}\cot\left(\frac{\pi}{4}x-\frac{\pi}{3}\right)$

e. $m(x)=3\sec(3x-\pi)$ f. $r(x)=3-\frac{3}{5}\csc\left(\frac{2\pi}{3}x+\frac{\pi}{4}\right)$