

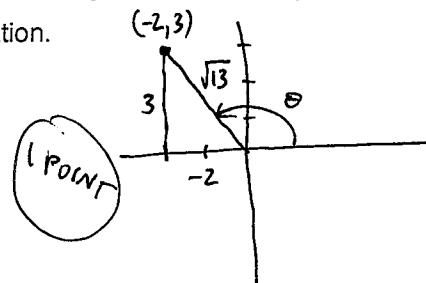
Quiz 12

1) Given the point $(-2, 3)$ on the circle $x^2 + y^2 = r^2$ that is also on the terminal side of angle θ in standard position, find

$\sin \theta$	$\cos \theta$	$\tan \theta$	$\csc \theta$	$\sec \theta$	$\cot \theta$
$\frac{3}{\sqrt{13}}$	$-\frac{2}{\sqrt{13}}$	$-\frac{3}{2}$	$\frac{\sqrt{13}}{3}$	$-\frac{\sqrt{13}}{2}$	$-\frac{2}{3}$

1 POINT

Draw a picture that describes the situation.



$$\begin{aligned} (-2)^2 + (3)^2 &= r^2 \\ 4 + 9 &= r^2 \\ 13 &= r^2 \\ \sqrt{13} &= r \end{aligned}$$

2) Find the exact value of each expression: *no decimals*

a) $\sec(-\pi) + \csc\left(-\frac{\pi}{2}\right)$

*sec is even function
csc is odd function*

$$\begin{aligned} &= \sec(\pi) - \csc\left(\frac{\pi}{2}\right) \\ &= \frac{1}{-1} - \frac{1}{1} = \boxed{-2} \end{aligned}$$

2 POINTS

b) $\sec\left(-\frac{\pi}{6}\right) = \sec\left(\frac{\pi}{6}\right)$

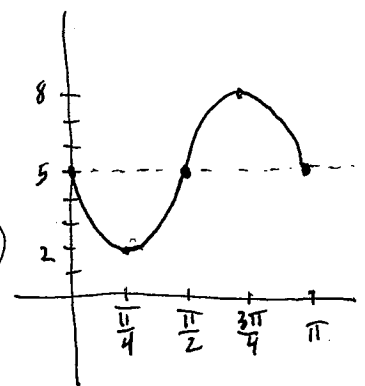
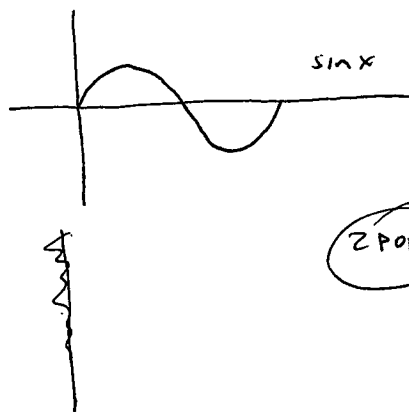
$$= \frac{1}{\cos\left(\frac{\pi}{6}\right)}$$

$$= \frac{1}{\frac{\sqrt{3}}{2}} = \frac{2}{\sqrt{3}} = \boxed{\frac{2\sqrt{3}}{3}}$$

2 POINTS

3) Graph each function being sure to divide one period up into four equal segments and labeling the tick marks on the axes. $y = 5 - 3\sin(2x)$

*vertical shift 5 units up.
amplitude = 3
Period = $\frac{2\pi}{2} = \pi$*



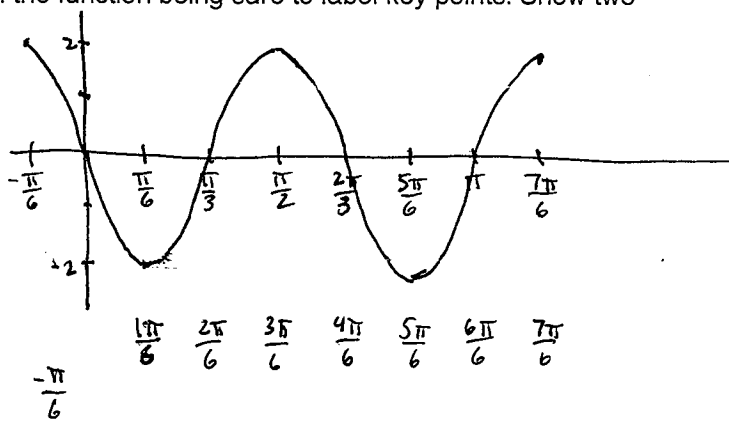
4) Find the amplitude, period, and phase shift of the function. Graph the function being sure to label key points. Show two periods. The function is $y = 2 \cos\left(3x + \frac{\pi}{2}\right)$

width of 4 subintervals
 $\frac{1}{4} \cdot \frac{2\pi}{3} = \frac{\pi}{6}$

$$\cos 3\left(x + \frac{\pi}{6}\right)$$

Phase Shift left $\frac{\pi}{6}$ units
Period = $\frac{2\pi}{3}$

$$\begin{aligned} -\frac{\pi}{6} + \frac{2\pi}{3} &= \frac{-\pi + 4\pi}{6} = \frac{3\pi}{6} = \boxed{\frac{\pi}{2}} \\ \frac{\pi}{2} + \frac{2\pi}{3} &= \frac{3\pi + 4\pi}{6} = \boxed{\frac{7\pi}{6}} \end{aligned}$$



2 POINTS