

Pre-Calculus

Chapter 4 Review

1. Fill in the table with exact values.

t	$\frac{4\pi}{3}$	5π	$\frac{27\pi}{6} = \frac{9\pi}{2}$	$-\frac{7\pi}{3}$	$\frac{5\pi}{6}$
cos t	$-\frac{1}{2}$	-1	0	$-\frac{1}{2}$	$\frac{1}{2}$
sin t	$-\frac{\sqrt{3}}{2}$	0	1	$-\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{2}$
tan t	$\frac{\sqrt{3}}{1}$	0	undef	$\frac{\sqrt{3}}{1}$	$-\frac{1}{\sqrt{3}}$
csc t	$-\frac{2\sqrt{3}}{3}$	undef	1	$-\frac{2\sqrt{3}}{3}$	$\frac{2}{\sqrt{3}}$

undefined

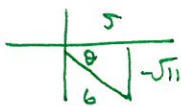
2. Convert 82° to radians.

$$82^\circ \cdot \frac{\pi}{180} = 1.43$$

3. Convert $\frac{5\pi}{7}$ to degrees (2 places). 128.57°

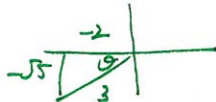
4. Find sin x if $\cos\left(\frac{\pi}{2} - x\right) = \frac{2}{7}$. $\frac{2}{7}$

5. Find the five remaining trig functions of θ if $\sec\theta = \frac{6}{5}$ and $\tan\theta < 0$.



$$\begin{aligned} \cos\theta &= \frac{5}{6} & \csc\theta &= \frac{-6\sqrt{11}}{11} \\ \sin\theta &= -\frac{\sqrt{11}}{6} & \cot\theta &= \frac{-5\sqrt{11}}{11} \\ \tan\theta &= -\frac{\sqrt{11}}{5} \end{aligned}$$

6. Find the exact value of sin x if $\cos x = -\frac{2}{3}$ and $\tan x > 0$.



$$\sin x = -\frac{\sqrt{5}}{3}$$

7. Find 2 values of θ in radians ($0 \leq \theta < 2\pi$) if $\tan\theta = \frac{\sqrt{3}}{3}$.

$$\theta = \frac{\pi}{6}, \frac{7\pi}{6}$$

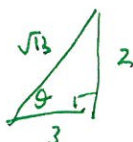
8. Find 2 values of θ in degrees ($0 \leq \theta < 360$) if $\sin\theta = .8387$.

$$\theta = 57^\circ, 123^\circ$$

9. Find the acute angle, x, if $\tan x = 2.345$. (In radians)

$$x = 1.17$$

10. Find the exact value of $\sin(\tan^{-1}\frac{2}{3})$



$$\frac{2\sqrt{13}}{13}$$

11. Find the exact value of $\cos(\tan^{-1}\frac{2}{3})$

$$\frac{3\sqrt{13}}{13}$$

12. For $y = 2\sin\left(2x + \frac{\pi}{3}\right)$, give the domain, range, amplitude, horizontal and vertical shifts, and the period.

$D: (-\infty, \infty)$ $AMP = 2$
 $R: [-2, 2]$ $SHIFT = \left(-\frac{\pi}{6}, 0\right)$ $PERIOD = \pi$

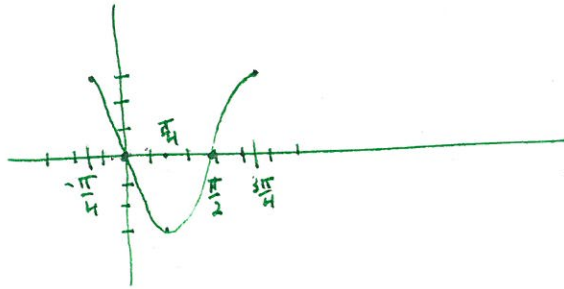
13. Graph $y = 3\cos\left(2x + \frac{\pi}{2}\right)$

$3\cos 2\left(x + \frac{\pi}{4}\right)$

$AMP = 3$

$SHIFT = \left(-\frac{\pi}{4}, 0\right)$

$PER = \pi$

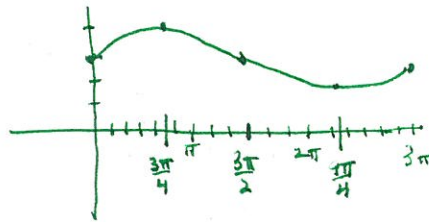


14. Graph $y = 3 + \sin\left(\frac{2x}{3}\right)$

$AMP = 1$

$SHIFT = (0, 3)$

$PER = 3\pi$

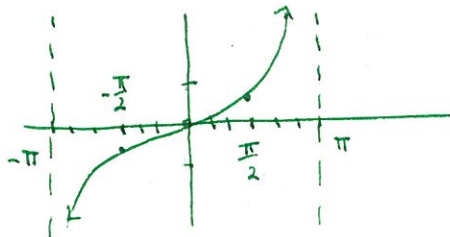


15. Graph $y = \frac{1}{2}\tan\left(\frac{x}{2}\right)$

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

$SHIFT = (0, 0)$

$PER = 2\pi$



16. What is the fundamental period of \sin ? \cos ? \tan ?

2π 2π π

17. Is \cos even or odd? \sin ? \tan ?

even odd odd