

# Review for Trigonometry Test

Name: \_\_\_\_\_

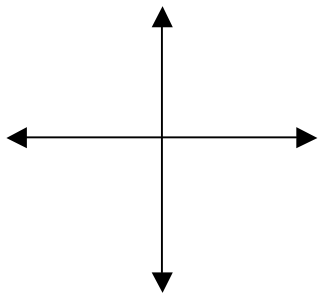
Due Date: \_\_\_\_\_

## SECTION 1: TRIG REVIEW

Evaluate.

1. $\sin\left(-\frac{8\pi}{3}\right)$	2. $\cos\left(-\frac{7\pi}{3}\right)$	3. $\tan(-\pi)$
4. $\csc\left(-\frac{3\pi}{4}\right)$	5. $\sec\left(-\frac{\pi}{2}\right)$	6. $\cot\left(-\frac{17\pi}{6}\right)$

Find the exact value of the remaining trig functions if:

5. $P = (-4, -1)$	
	
$\sin \theta = \underline{\hspace{2cm}}$	$\csc \theta = \underline{\hspace{2cm}}$
$\cos \theta = \underline{\hspace{2cm}}$	$\sec \theta = \underline{\hspace{2cm}}$
$\tan \theta = \underline{\hspace{2cm}}$	$\cot \theta = \underline{\hspace{2cm}}$
	6. $\cos \theta = \frac{4}{6}$ and $\tan \theta < 0$ .
	$\sin \theta = \underline{\hspace{2cm}}$
	$\cot \theta = \underline{\hspace{2cm}}$ $\sec \theta = \underline{\hspace{2cm}}$
	$\csc \theta = \underline{\hspace{2cm}}$ $\tan \theta = \underline{\hspace{2cm}}$

## SECTION 2: INVERSES

1. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) =$	2. $\tan^{-1}(-1) =$	3. $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) =$
4. $\operatorname{arcsec}(2) =$	5. $\operatorname{csc}^{-1}(-\sqrt{2}) =$	6. $\cot^{-1}\left(\frac{\sqrt{3}}{3}\right) =$
7. $\arccos\left(-\frac{\sqrt{3}}{2}\right) =$	8. $\tan^{-1}(\sqrt{3}) =$	9. $\sec^{-1}\left(\frac{2\sqrt{3}}{3}\right) =$
10. $\operatorname{arccot}(0) =$	11. $\sin\left(\sin^{-1}\left(\frac{3}{2}\right)\right) =$	12. $\tan\left(\tan^{-1}\left(\frac{3}{2}\right)\right) =$

13. $\sec\left[\tan^{-1}\left(\frac{1}{2}\right)\right] =$	14. $\cot\left[\cos^{-1}\left(-\frac{\sqrt{3}}{3}\right)\right] =$
15. $\operatorname{csc}[\tan^{-1}(-2)] =$	16. $\sin\left[\cos^{-1}\left(\frac{1}{2}\right)\right] =$

### SECTION 3: FORMULAS

Match the following sum and difference formulas.

- \_\_\_\_\_ 1.  $\sin(x - y)$       A.  $\frac{\tan x - \tan y}{1 + \tan x \tan y}$
- \_\_\_\_\_ 2.  $\sin(x + y)$       B.  $\sin x \cos y + \cos x \sin y$
- \_\_\_\_\_ 3.  $\cos(x - y)$       C.  $\cos x \cos y + \sin x \sin y$
- \_\_\_\_\_ 4.  $\cos(x + y)$       D.  $\cos x \cos y - \sin x \sin y$
- \_\_\_\_\_ 5.  $\tan(x - y)$       E.  $\frac{\tan x + \tan y}{1 - \tan x \tan y}$
- \_\_\_\_\_ 6.  $\tan(x + y)$       F.  $\sin x \cos y - \cos x \sin y$

List the double angle formulas

$$\sin(2\theta) =$$

$$\cos(2\theta) =$$

$$\cos(2\theta) =$$

$$\cos(2\theta) =$$

7. $\sin 165^\circ$	8. $\cos 135^\circ \cos 90^\circ - \sin 135^\circ \sin 90^\circ$
9. $\cos\left(\frac{\pi}{12}\right)$	10. $\tan\left(\frac{5\pi}{12}\right)$

11. $\sin\left(\frac{\pi}{12}\right)\cos\left(\frac{5\pi}{12}\right) + \sin\left(\frac{5\pi}{12}\right)\cos\left(\frac{\pi}{12}\right)$	12. $\frac{\tan\frac{5\pi}{6} - \tan\frac{2\pi}{3}}{1 + \tan\frac{5\pi}{6}\tan\frac{2\pi}{3}}$
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**Given that:**  $\cos a = -\frac{1}{3}$   $\frac{\pi}{2} \leq a \leq \pi$       **and**       $\tan b = \frac{5}{12}$ ,  $\pi \leq b \leq \frac{3\pi}{2}$ .

Quadrant: \_\_\_\_\_

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Find the exact values of the following:

13. $\cos(a - b)$	14. $\sin(a + b)$
15. $\sin(2a)$	16. $\cos(2a)$

## SECTION 4: IDENTITIES

Write the three Pythagorean identities in the blanks below.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

Match each identity.

\_\_\_\_\_ 4.  $\frac{\sin^2 x}{1+\cos x} + \cos x$

A.  $\tan x$

\_\_\_\_\_ 5.  $\frac{1+\sec x}{\tan x+\sin x}$

B.  $1$

\_\_\_\_\_ 6.  $\frac{\sec(-x)}{\csc(-x)}$

C.  $-\sec x$

D.  $-\tan x$

\_\_\_\_\_ 7.  $\frac{\sec^2 x-1}{\tan x}$

E.  $\csc x$

F.  $\sin x$

\_\_\_\_\_ 8.  $\frac{\sec x-\cos x}{\tan x}$

G.  $\sec x$

\_\_\_\_\_ 9.  $-\sin x(\cot x + \tan x)$

10. $(1-\sin^2 x)(1+\tan^2 x) = 1$	11. $\frac{\sec^2 x}{\tan x} = \sec x \csc x$
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$$12. \quad \frac{1 - \tan^2 x}{1 + \tan^2 x} = 1 - 2\sin^2 x$$

$$13. \quad \cos x + \sin x \tan x = \sec x$$

$$14. \quad (1 + \tan \theta)^2 = \sec^2 \theta + 2 \tan \theta$$

$$15. \quad \sin^2 x - \sin^4 x = \cos^2 x - \cos^4 x$$

$$16. \quad \frac{\sin \theta + \cos \theta}{\sin \theta \cos \theta} = \sec \theta + \csc \theta$$

$$17. \quad \frac{\sec \theta + \tan \theta}{\cos \theta + \cot \theta} = \sin \theta \sec^2 \theta$$

## SECTION 5: SOLVING EQUATIONS

Solve each equation and find the solutions on the interval  $[0, 2\pi)$

1.  $2\sin\theta + \sqrt{3} = 0$

2.  $\tan\theta = 2\sin\theta$

3.  $(\cot\theta + 1)\left(\csc\theta - \frac{1}{2}\right) = 0$

4.  $\cos(2\theta) = \frac{1}{2}$

5.  $\sin\left(3x + \frac{\pi}{18}\right) = 1$

6.  $\sin(2\theta)\sin\theta = \cos\theta$

Solve the equation and write the solutions in **GENERAL FORM** =)

7.  $\tan^2\theta = \frac{1}{3}$

8.  $2\cos^2\theta - 5\cos\theta = -2$