

The Trigonometric Functions
Review Chapter Test - watch your time

Directions:

- 1) YOU MAY USE A GRAPHIC CALCULATOR AFTER.
- 2) MUST BE DONE IN PENCIL.
- 3) TOTAL POSSIBLE POINTS - 35

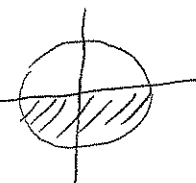
I. Evaluate the given trigonometric function for each quadrantal angle. Use the exact values (fractions please...avoid calculators.)

1. $\sec 60^\circ$ $\frac{1}{\cos 60^\circ} = 2$	2. $\cos 3\pi$ -1	3. $\sin(-90^\circ)$ -1	4. $\cot \frac{\pi}{2}$ $\frac{1}{\tan(\frac{\pi}{2})} = \text{undif.}$
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II. Give the exact simplified value. (No decimals and still avoid calculators)

<u>II</u> quadrant	<u>III</u> quadrant	<u>IV</u> quadrant
5. $\sin \frac{2\pi}{3}$ Ref. $\frac{\pi}{3} = 60^\circ$ $\sin 60^\circ = \frac{\sqrt{3}}{2}$	6. $\cos 210^\circ$ Ref. 30° $-\cos 30^\circ = -\frac{\sqrt{3}}{2}$	7. $\text{ctg} \frac{11\pi}{6}$ Ref. $\frac{\pi}{6}$ $-\text{ctg} \frac{\pi}{6} = -\sqrt{3}$

III. Find the angle measure(s) for θ that make the statement true where $\pi \leq \theta \leq 2\pi$.



8. $\cot \theta = -1$ <u>IV</u> Ref. 45° $\theta = 315^\circ$	9. $\tan \theta = -\sqrt{3}$ <u>IV</u> Ref. 60° $\theta = 300^\circ$	10. $\cos \theta = \frac{-\sqrt{3}}{2}$ <u>III</u> Ref. 30° $\theta = 210^\circ$
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IV. Find two coterminal angles, one positive and one negative, MAINTAIN THE SAME UNIT.

11. 220°

$$\begin{aligned} &+360^\circ = 580^\circ \\ &-360^\circ = -140^\circ \end{aligned}$$

12. $\frac{\pi}{7}$

$$\begin{aligned} &+2\pi = \frac{\pi}{7} + \frac{14\pi}{7} = \frac{15\pi}{7} \\ &-2\pi = \frac{\pi}{7} - \frac{14\pi}{7} = -\frac{13\pi}{7} \end{aligned}$$

V. State the quadrant or axis where each angle terminates.

$$13. \theta = \frac{9\pi}{12} \quad \underline{\text{II}}$$

$$14. \theta = 5.38 \quad \underline{\text{IV}}$$

VII. Convert from radians to degrees. Round to two decimal places.

$$15. -\frac{2\pi}{7} \circ \frac{180}{\pi} = -\frac{360}{7} = -51.43$$

VIII. Convert from degrees to radians. Leave in reduced fractional π form.

$$16. -225^\circ \circ \frac{\pi}{180} = -\frac{45\pi}{36} = \boxed{-\frac{5\pi}{4}}$$

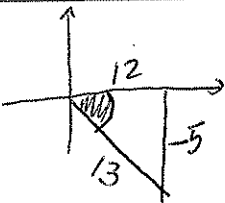
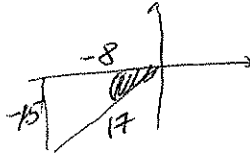
IX. Change the angles to decimal degree form. SHOW YOUR WORK. *An answer only is NOT acceptable. Round to two decimal places.*

$$17. 45^\circ 40' 25'' = 45.67$$

X. Change from decimal degree form to $D^\circ M' S''$. SHOW YOUR WORK. An answer only is NOT acceptable.

$$18. -240.16^\circ = 240^\circ 9' 36''$$

XI. Find the 6 trigonometric function values for the given point in the terminal side of the angle, θ .

<p>19. (12, -5)</p>  $\sin \theta = -\frac{5}{13} \quad \csc \theta = -\frac{13}{5}$ $\cos \theta = \frac{12}{13} \quad \sec \theta = \frac{13}{12}$ $\tan \theta = -\frac{5}{12} \quad \cot \theta = -\frac{12}{5}$	<p>20. (-8, -15)</p>  $\sin \theta = -\frac{15}{17} \quad \csc \theta = -\frac{17}{15}$ $\cos \theta = -\frac{8}{17} \quad \sec \theta = -\frac{17}{8}$ $\tan \theta = \frac{15}{8} \quad \cot \theta = \frac{8}{15}$
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XII. Given the provided information, find the exact values of the other five trigonometric functions.

<p>21. $\cos \theta = -\frac{12}{13}$ and $\tan \theta < 0$</p> <p style="margin-left: 40px;"> $\begin{matrix} & 13 & \\ / & & \backslash \\ \textcircled{2} & 3 & \textcircled{2} & 4 \end{matrix}$ </p> $\sin \theta = \frac{5}{13} \quad \csc \theta = \frac{13}{5}$ $\cos \theta = -\frac{12}{13} \quad \sec \theta =$ $\tan \theta = -\frac{5}{12} \quad \cot \theta = -\frac{12}{5}$	<p>22. $\tan \theta = \frac{1}{4}$ and $\sec \theta > 0$</p> <p style="margin-left: 40px;"> $\begin{matrix} & 4 & \\ / & & \backslash \\ \textcircled{1} & 3 & \textcircled{1} & 4 \end{matrix}$ </p> $\sin \theta = \frac{\sqrt{17}}{17} \quad \csc \theta = \sqrt{17}$ $\cos \theta = \frac{4\sqrt{17}}{17} \quad \sec \theta = \frac{\sqrt{17}}{4}$ $\tan \theta = \frac{1}{4} \quad \cot \theta = 4$
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XIII. State the quadrant(s) or axis in which θ terminates based on the given information.

<p>23. $\tan \theta < 0$</p> <p style="text-align: center; font-size: 1.2em;">II and IV</p>	<p>24. $\sec \theta > 0$ and $\sin \theta < 0$</p> <p style="margin-left: 40px;"> $\begin{matrix} & & \\ / & & \backslash \\ 1 & \textcircled{4} & 3 & \textcircled{4} \end{matrix}$ </p>	<p>25. $\cot \theta > 0$ and $\sin \theta < 0$</p> <p style="margin-left: 40px;"> $\begin{matrix} & & & \\ / & & \backslash & \\ 1 & \textcircled{3} & \textcircled{3} & 4 \end{matrix}$ </p>
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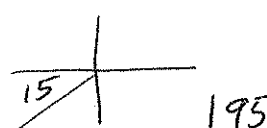
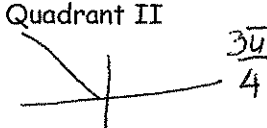
XIV. Determine whether each of the following has a value that is positive, negative 0, or ± 1 .

26. $\cos \frac{7\pi}{4}$ +	27. $\sin \frac{5\pi}{6}$ +	13. $\text{ctg } 240^\circ$ +
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XV. State the reference angle. Keep radians in radians and degrees in degrees.

27. 250° <u>III</u> 70°	28. $\frac{8\pi}{5}$ <u>IV</u> $\frac{2\pi}{5}$	29. -200° <u>II</u> 20°
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XVI. Give the measure of an angle that has the given reference angle and that terminates in the designated quadrant. Keep radians in radians and degrees in degrees.

30. 60° terminates in Quadrant I 60°	31. 15° terminates in Quadrant III 	32. $\frac{\pi}{4}$ terminates in Quadrant II 
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XVII. Round each of the following to four decimal places. Watch your model!

33. $\sin \frac{2\pi}{7}$ 0.7818	34. $\sec 115^\circ$ -2.3662	35. $\text{ctg } 2.3$ 1.160
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