Pre-Calculus
Intro to Trig Review

Change to a decimal degree.

1. 34° 29' 10" $34.4861°$ 2. 75° 35' 12" $75.5867°$

Change to degrees/minutes/seconds.

3. 16.32° $16°19'12''$ 4. 45.95° $45°57'$

Change to a radian measure in terms of π. $\times \frac{\pi}{180°}$

5. 157.5° $\frac{7\pi}{8}$ 6. 32° $\frac{8\pi}{45}$ 7. 45° $\frac{\pi}{4}$ 8. 180° π

Change to a degree measure. $\times \frac{180°}{\pi}$

9. $\frac{7\pi}{8}$ $157.5°$ 10. $\frac{-4\pi}{3}$ $-240°$ 11. 4.76 $272.7°$ 12. 4 $229.2°$

13. Convert the 262°43'48" to a radian measure. Round to 3 decimal places. 4.586 radians
$(\times \pi/180°)$

Find one positive and one negative coterminal angle for the given angle.

14. $\frac{13\pi}{4}$ $\frac{5\pi}{4}, -\frac{3\pi}{4}$ 15. $\frac{-11\pi}{6}$ $\frac{\pi}{6}, -\frac{23\pi}{6}$ 16. 240° $600°$ $-120°$ 17. -135° $-495°$ $225°$

Determine the quadrant in which the terminal side lies for the given angles.

18. -150° III 19. 405° I 20. $\frac{4\pi}{3}$ III 21. $\frac{-7\pi}{12}$ III

22. 3.2 III 23. 1.5 I

Given the radian measure of a central angle, find the measure of its intercepted arc in a circle of radius 5 inches.

24. $\frac{4\pi}{3}$ $\frac{20\pi}{3}$ or 20.9 in. 25. 2.4 12 inches

Given the measure of a central angle, find the measure of its intercepted arc in a circle of radius 30 cm.

26. 42° 7π cm or 21.99 cm 27. 120° 20π cm or 62.83 cm

Given the measure of an arc, find the radian measure of its central angle in a circle whose radius is 10 cm.

28. 12 cm 1.2 radians 29. 45 cm. 4.5 radians

Find the value of the six trig functions of an angle in standard position if the given point lies on its terminal side.

see attached

30. $(-\sqrt{3}, -1)$ 31. (7, 24) 32. (-8, 15) 33. (5, 0)

Suppose θ is an angle in standard position whose terminal side lies in the given quadrant. Find the value of the remaining five trig functions of θ.

34. $\sin\theta = -\frac{3}{5}$, quadrant III 35. $\cos\theta = -\frac{1}{2}$, quadrant II

see attached

36. $\cot\theta = \frac{1}{2}$, quadrant I 37. $\cos\theta = \frac{\sqrt{3}}{3}$, quadrant IV

Find the exact value of each trigonometric function. Work attached

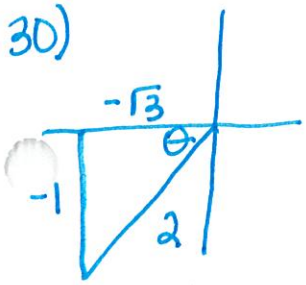
38. cot - 30° $-\sqrt{3}$ 39. sin 240° $\frac{-\sqrt{3}}{2}$ 40. sec 135° $-\sqrt{2}$ 41. cos 135° $\frac{-\sqrt{2}}{2}$

42. $\sec\frac{4\pi}{3}$ -2 43. $\sec\frac{2\pi}{3}$ -2 44. sec 60° 2 45. $\tan\frac{5\pi}{4}$ 1

46. tan 120° $-\sqrt{3}$ 47. cos -270° 0 48. sin - 45° $\frac{-\sqrt{2}}{2}$ 49. $\cot\frac{-4\pi}{3}$ $\frac{\sqrt{3}}{3}$

50. csc 150° 2

30)

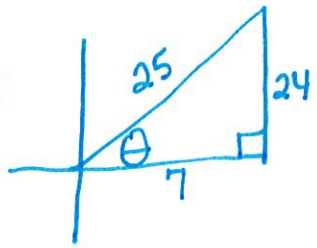


$\sin\theta = -\frac{1}{2}$ $\csc\theta = -2$

$\cos\theta = -\frac{\sqrt{3}}{2}$ $\sec\theta = \frac{-2\sqrt{3}}{3}$

$\tan\theta = \frac{-\sqrt{3}}{3}$ $\cot\theta = \sqrt{3}$

31)

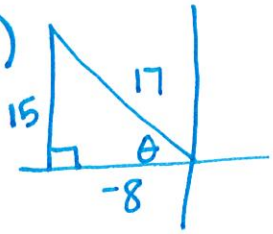


$\sin\theta = \frac{24}{25}$ $\csc\theta = \frac{25}{24}$

$\cos\theta = \frac{7}{25}$ $\sec\theta = \frac{25}{7}$

$\tan\theta = \frac{24}{7}$ $\cot\theta = \frac{7}{24}$

32)

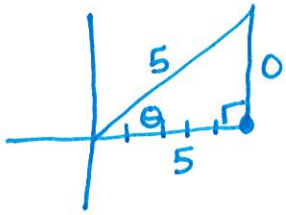


$\sin\theta = \frac{15}{17}$ $\csc\theta = \frac{17}{15}$

$\cos\theta = \frac{-8}{17}$ $\sec\theta = \frac{-17}{8}$

$\tan\theta = \frac{-15}{8}$ $\cot\theta = \frac{-8}{15}$

33)

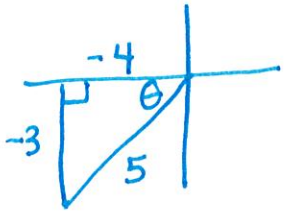


$\sin\theta = 0$ $\csc\theta =$ und.

$\cos\theta = 1$ $\sec\theta = 1$

$\tan\theta = 0$ $\cot\theta =$ und.

34)

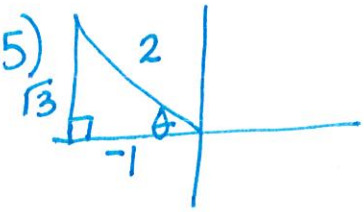


$\cos\theta = -\frac{4}{5}$ $\csc\theta = -\frac{5}{3}$

$\tan\theta = \frac{3}{4}$ $\sec\theta = -\frac{5}{4}$

$\cot\theta = \frac{4}{3}$

35)

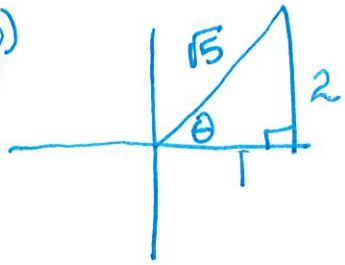


$\sin\theta = \frac{\sqrt{3}}{2}$ $\csc\theta = \frac{2\sqrt{3}}{3}$

$\tan\theta = -\sqrt{3}$ $\sec\theta = -2$

$\cot\theta = -\frac{\sqrt{3}}{3}$

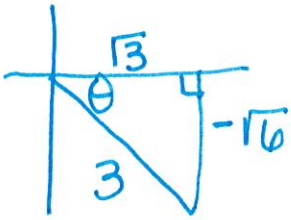
36)



$\sin\theta = \frac{2\sqrt{5}}{5}$ $\csc\theta = \frac{\sqrt{5}}{2}$

$\cos\theta = \frac{\sqrt{5}}{5}$ $\sec\theta = \sqrt{5}$

$\tan\theta = 2$

37) 

$\sin\theta = -\frac{\sqrt{6}}{3}$ $\csc\theta = -\frac{\sqrt{6}}{2}$

$\sec\theta = \sqrt{3}$

$\tan\theta = -\sqrt{2}$ $\cot\theta = -\frac{\sqrt{2}}{2}$

38) $\cot -30° = \cot 330°$

$-30° + 360° = 330°$ $\left(\frac{\sqrt{3}}{2}, \frac{-1}{2}\right)$

$(\cos, \sin)$ $\tan = \frac{\sin}{\cos}$

$\cot = \frac{\cos}{\sin}$ $\csc = \frac{1}{\sin}$

$\sec = \frac{1}{\cos}$

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

39) $\sin 240° = \boxed{-\frac{\sqrt{3}}{2}}$

$(-1/2, -\sqrt{3}/2)$

40) $\sec 135°$ $\frac{1}{\frac{-\sqrt{2}}{2}} = 1 \cdot \frac{2}{-\sqrt{2}} = \frac{-2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{-\cancel{2}\sqrt{2}}{\cancel{2}} = \boxed{-\sqrt{2}}$

$\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$

41) $\cos 135° = \boxed{-\frac{\sqrt{2}}{2}}$

$\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$

42) $\sec \frac{4\pi}{3} = \frac{1}{\frac{-1}{2}} = \boxed{-2}$

$\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

43) $\sec \frac{2\pi}{3} = \frac{1}{-1/2} = \boxed{-2}$

$\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

44) $\sec 60° = \frac{1}{1/2} = \boxed{2}$

$\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

45) $\tan \frac{5\pi}{4} = \frac{-\sqrt{2}/2}{-\sqrt{2}/2} = \boxed{1}$

$\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$

46) $\tan 120°$ $= \frac{\frac{\sqrt{3}}{2}}{\frac{-1}{2}} = \frac{\sqrt{3}}{\cancel{2}} \cdot \frac{-\cancel{2}^{1}}{1} = \boxed{-\sqrt{3}}$

$\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

47) $\cos -270° = \cos 90°$

$-270°$
$+360°$
$90°$

$(0, 1)$ $= \boxed{0}$

48) $\sin -45^\circ = \sin 315^\circ = \boxed{\frac{-\sqrt{2}}{2}}$

$\left(\frac{\sqrt{2}}{2}, \frac{-\sqrt{2}}{2}\right)$

$$\begin{array}{r} -45^\circ \\ +360^\circ \\ \hline 315^\circ \end{array}$$

49) $\cot -\frac{4\pi}{3} = \cot \frac{2\pi}{3}$

$-\frac{4\pi}{3} + \frac{6\pi}{3} = \frac{2\pi}{3}$

$\left(\frac{-1}{2}, \frac{-\sqrt{3}}{2}\right)$

$\frac{\frac{-1}{2}}{\frac{-\sqrt{3}}{2}} = \frac{-1}{\cancel{2}} \cdot \frac{-\cancel{2}^{1}}{\sqrt{3}} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{\sqrt{3}}{3}}$

50) $\csc 150^\circ = \frac{1}{1/2} = \boxed{2}$

$\left(\frac{-\sqrt{3}}{2}, \frac{1}{2}\right)$