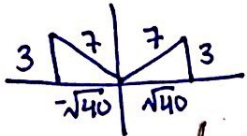


9. Given $0 \leq \theta \leq 2\pi$, find the exact values. If the answer is an angle measure, use radians.

a. $\sec(\sin^{-1} \frac{3}{7}) = \pm \frac{7\sqrt{10}}{20}$
 $\sin^{-1}(\frac{3}{7}) = \theta \Rightarrow \sin \theta = \frac{3}{7}$

b. $\cos^{-1}(-\frac{\sqrt{3}}{2}) = \frac{5\pi}{6}$ or $\frac{7\pi}{6}$



c. $\tan^{-1}(-\sqrt{3}) = \frac{2\pi}{3}$ or $\frac{5\pi}{3}$

d. $\cos(\tan^{-1} 4) = \frac{\sqrt{17}}{17}$
 UPPER CASE indicates restricted to Q1 + Q4

e. $\cos \frac{5\pi}{6} = -\frac{\sqrt{3}}{2}$

f. $\sin(-135^\circ) = -\frac{\sqrt{2}}{2}$

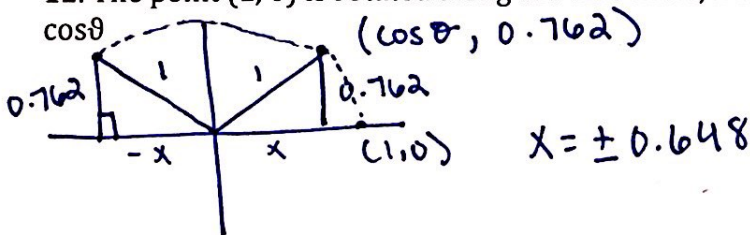
10. Find two angles, one positive and one negative, that are coterminal with $\frac{7\pi}{4}$.

$\frac{7\pi}{4} \pm 2\pi$ (i.e. $-\frac{\pi}{4}$ and $\frac{15\pi}{4}$)

11. The angle of a sector is given to be 40° , and the area of the sector is 20 cm^2 . Calculate the length of the sector.

arc length $s = 5.284 \text{ cm}$

12. The point $(1, 0)$ is rotated along the unit circle, if $\sin \theta = 0.762$, what are the possible value(s) for $\cos \theta$



$\cos \theta = \frac{x}{r} = \pm 0.648$

$x = \pm 0.648$

13. The tangent and cosine functions are both negative in which quadrant(s)?

Q2

14. Express $\sin(-225^\circ)$ in simplest radical form. $\frac{\sqrt{2}}{2}$

15. To obtain the inverse sine function, we restrict the domain of $f(x) = \sin x$ to $-\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$. Write a short explanation in which you discuss why this restriction is necessary.

Since $f(x) = \sin x$ is not one-to-one, must restrict domain to make it one-to-one to obtain inverse function. Interval $[-\frac{\pi}{2}, \frac{\pi}{2}]$ captures all possible values, positive and negative, of $\sin x$.

Name: _____

1. Express each of the following in terms of its reference angle:

a. $\sin 125^\circ =$

$\sin(55^\circ)$

b. $\sec \frac{7\pi}{6} =$

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

c. $\cot\left(-\frac{5\pi}{4}\right) =$

$-\cot\left(\frac{\pi}{4}\right)$

2. Find the approximate value of the following:

a. $\csc(232^\circ)$

-1.269

b. $\sin \frac{3\pi}{17}$

0.526

c. $\cos^{-1}\left(-\frac{2}{5}\right) =$ OR _____ degrees

$113.578^\circ + 360^\circ n$
 $246.422^\circ + 360^\circ n$

3. The number of radians in one half of a revolution is π

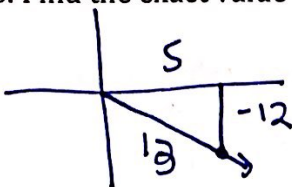
4. Express 212° in radians

3.7 or $\frac{53\pi}{45}$

5. Express 8 radians in degrees

458.4°

6. Find the exact value of each of the other five trig functions if $\sec \theta = \frac{13}{5}$ and θ is in quadrant IV



$\cos \theta = \frac{5}{13}$

$\sin \theta = -\frac{12}{13}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = -\frac{13}{12}$

$\cot \theta = -\frac{5}{12}$

7. Will the answer be an angle measure or a ratio?

a. $\tan^{-1} 2 = \theta$

angle

b. $\sec(\cos^{-1} 0.3)$

Ratio

c. $\cos(\tan^{-1} \frac{1}{2})$

Ratio

d. $\sin^{-1} \frac{\sqrt{3}}{2} = \theta$

angle

8. A sector of a circle has radius 20cm and central angle $\frac{10\pi}{7}$

a.) What is the arc length of the sector?

arc length $s = \frac{\frac{10\pi}{7}}{2\pi} \cdot 20(2\pi) = 89.8 \text{ cm}$

b.) What is the area of the sector of the circle?

area K of sector

$K = \frac{\frac{10\pi}{7}}{2\pi} \cdot \pi(20)^2 = 897.6 \text{ cm}^2$