

Honors Pre-Calculus Homework Packet: UNIT 4 Trigonometric Functions

4.1

Convert from DMS to Degrees

1. $35^{\circ}24'$ 2. $-48^{\circ}30'36''$

Convert from Degrees to DMS

3. -49.7° 4. 99.37°

Convert from Radians to Degrees

5. $\frac{3\pi}{5}$ 6. $\frac{\pi}{10}$ 7. $-\frac{7\pi}{9}$ 8. $\frac{13\pi}{3}$

Convert from Degrees to Radians

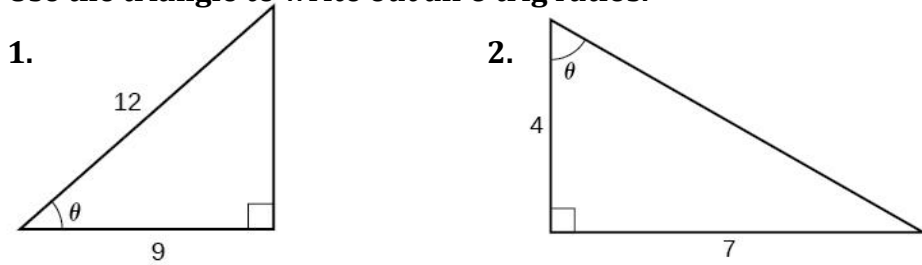
9. 150° 10. -330° 11. 1025° 12. -290°

Arc Length: Given some information about the length of an arc, find the missing information.

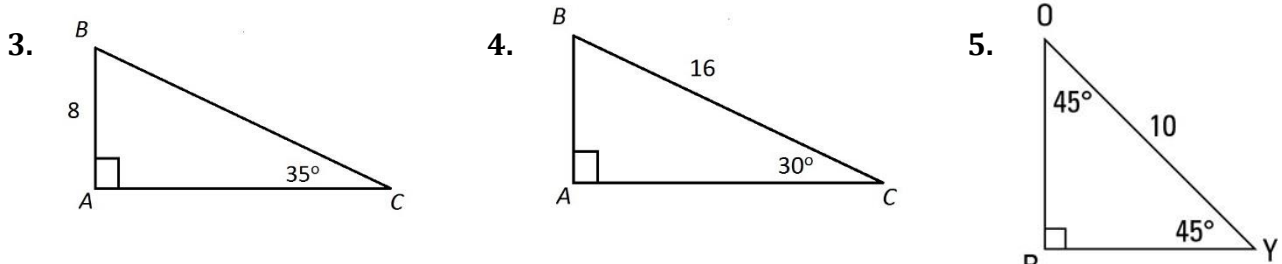
13. $r = 12\text{in}$, $\theta = 30^{\circ}$, find the arc length 14. $\theta = 225^{\circ}$, arc length = 7π , find the radius
15. Two Coast Guard patrol boats leave Cape May at the same time and at the same speed. One travels with a bearing of $42^{\circ}30'$ and the other with a bearing of $52^{\circ}12'$. How far apart will they be when they are both 25 miles from Cape May?

4.2

Use the triangle to write out all 6 trig ratios.



Find the missing angles and sides of the right triangle. Use special right triangles if possible.



Assume that θ is an acute angle in a right triangle. Write the other 5 trig functions given the following.

6. $\cos \theta = \frac{5}{8}$ 7. $\sin \theta = \frac{2}{3}$ 8. $\cot \theta = \frac{11}{3}$

4.3

Use the unit circle to evaluate each trig function.

1. $\sin \frac{\pi}{4}$
2. $\cos \frac{-3\pi}{2}$
3. $\tan \frac{11\pi}{3}$
4. $\csc(-120^\circ)$
5. $\sec \frac{-5\pi}{6}$
6. $\cot(600^\circ)$
7. $\sin(-45^\circ)$
8. $\cos \frac{17\pi}{6}$
9. $\tan 3\pi$
10. $\csc \frac{\pi}{6}$
11. $\sec(-450^\circ)$
12. $\cot \frac{44\pi}{3}$

Use the trig functions given to write out the other 5 trig functions.

6. $\cos \theta = \frac{2}{3}$ and $\tan \theta > 0$
 7. $\cot \theta = -\frac{7}{11}$ and $\sin \theta > 0$
 8. $\sec \theta = -\frac{5}{4}$ and $\sin \theta < 0$
-

4.7

Use the unit circle to find the exact value of each inverse trig function.

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