

Section 1 Review

All answers must include enough work to explain how you arrived at your answer; and all answers must be written precisely, for example “ $\sqrt{7}$ ” rather than “2.646” or “ $\frac{1}{7}$ ” rather than “0.143”. NO DECIMAL NOTATION!

Please leave your answers as unsimplified / unreduced expressions, for example “ $2^3 - \sqrt{9}$ ” or “ $1/\sqrt{3}$ ”.

1. Convert the following angles between **degrees** and **radians**.

(a) $\frac{\pi}{3}$ radians

(c) 45°

(b) $\frac{\pi}{7}$ radians

(d) 11°

2. State the **quadrant** (QI, QII, QIII, or QIV) for the angles below:

(a) $\frac{5\pi}{3}$

(b) $\frac{5\pi}{6}$

(c) $\frac{5\pi}{4}$

3. Give **exact values** for the expressions below.

(a) $\sin\left(\frac{\pi}{3}\right)$

(d) $\sin\left(\frac{-\pi}{3}\right)$

(g) $\sin\left(\frac{4\pi}{3}\right)$

(b) $\sec\left(\frac{\pi}{3}\right)$

(e) $\sec\left(\frac{-\pi}{3}\right)$

(h) $\sec\left(\frac{4\pi}{3}\right)$

(c) $\tan\left(\frac{\pi}{3}\right)$

(f) $\tan\left(\frac{-\pi}{3}\right)$

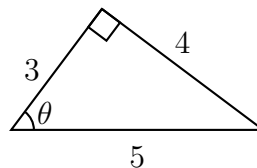
(i) $\tan\left(\frac{4\pi}{3}\right)$

4. Write the trigonometric functions below in terms of $\sin(\theta)$ and $\cos(\theta)$.

(a) $\sec(\theta) =$

(b) $\tan(\theta) =$

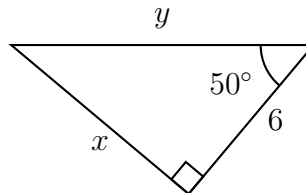
5. State values for the indicated trig functions in the given right triangle.



(a) $\sin(\theta) =$

(b) $\tan(\theta) =$

6. Find the values of the missing sides x and y in the given right triangle.
(There are three possible problems of this type)



7. If $\cos(\theta) = \frac{1}{3}$ and θ is in QIV, then find $\tan(\theta)$.

Challenge Problems

1. If $\sin(\theta) = \frac{1}{2}$, then what TWO values $0 \leq \theta < 2\pi$ are possible for θ ?

2. In the boxes below, write either $\boxed{<}$ or $\boxed{>}$.

(a) $\sin\left(\frac{\pi}{7}\right) \boxed{\phantom{<}} \sin\left(\frac{2\pi}{7}\right)$

(b) $\sin\left(\frac{-\pi}{7}\right) \boxed{\phantom{<}} 0$

3. Give an angle θ in QII which has reference angle $\frac{\pi}{7}$.

4. What angle θ in QI will satisfy $\cos(\theta) = \sin\left(\frac{\pi}{12}\right)$?