Precalculus
Homework
Definition of the trigonometric functions and basic computations

1. Convert from degrees to radians.

   (a) $15°$.
   (b) $30°$.
   (c) $36°$.
   (d) $45°$.
   (e) $60°$.
   (f) $75°$.
   (g) $90°$.
   (h) $120°$.
   (i) $135°$.
   (j) $150°$.
   (k) $180°$.
   (l) $225°$.
   (m) $270°$.
   (n) $305°$.
   (o) $360°$.
   (p) $405°$.
   (q) $1200°$.
   (r) $-900°$.
   (s) $-2014°$.

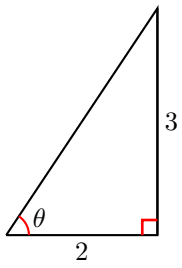
2. Convert from radians to degrees. The answer key has not been proofread, use with caution.

   (a) 4π.
   (b) $-\frac{7}{6}\pi$.
   (c) $\frac{7}{12}\pi$.
   (d) $\frac{4}{3}\pi$.
   (e) $-\frac{3}{8}\pi$.
   (f) 2014π.
   (g) 5.
   (h) -2014.

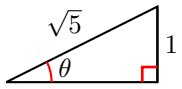
3. Find the indicated circle arc-length. The answer key has not been proofread, use with caution.

   (a) Circle of radius 3, arc of measure $36°$.
   (b) Circle of radius $\frac{1}{2}$, arc of measure $100°$.
   (c) Circle of radius 1, arc of measure 3 (radians).
   (d) Circle of radius 3, arc of measure $300°$.

4. Find the 6 trigonometric functions of the indicated angle in the indicated right triangle.

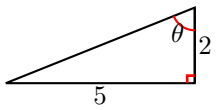


   (a)

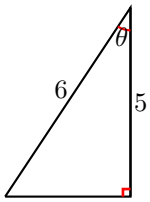


   (b)

(c)



(d)



5. Find the exact value of the trigonometric function (using radicals).

   (a) $\cos 135°$.

   (b) $\sin 225°$.

   (c) $\cos 495°$.

   (d) $\sin 560°$.

   (e) $\sin\left(\dfrac{3\pi}{2}\right)$.

   (f) $\cos\left(\dfrac{11\pi}{6}\right)$.

   (g) $\sin\left(\dfrac{2015\pi}{3}\right)$.

   (h) $\cos\left(\dfrac{17\pi}{3}\right)$.

6. Find all solutions of the equation in the interval $[0, 2\pi)$. The answer key has not been proofread, use with caution.

   (a) $\sin x = -\frac{\sqrt{2}}{2}$.

   (b) $\cos x = \frac{\sqrt{3}}{2}$.

   (c) $\sin(3x) = \frac{1}{2}$.

   (d) $\cos(7x) = 0$.

   (e) $\cos\left(3x + \frac{\pi}{2}\right) = 0$.

   (f) $\sin\left(5x - \frac{\pi}{3}\right) = 0$.