1. Convert 192° to radians. Give your answer as a fraction involving $\pi$.

2. Convert $\frac{5\pi}{12}$ radians to degrees.

3. In the following circle, $r$ is the radius of the circle, $\theta$ is the indicated angle, and $L$ is the length of the corresponding arc of the circle.

   ![Diagram of a circle with radius $r$ and angle $\theta$]

   If $\theta = 45^\circ$ and $r = 5$, what is $L$?

4. The radius of a wheel rolling on the ground is 80 centimeters. If the wheel rotates through an angle of 60°, how many centimeters does it move? Express your answer in terms of $\pi$. 
5. Consider the following right triangle:

(a) What is \( \sin \theta \)?
(b) What is \( \cos \theta \)?
(c) What is \( \tan \theta \)?
(d) What is \( \sec \theta \)?
(e) What is \( \csc \theta \)?
(f) What is \( \cot \theta \)?

6. Consider the following right triangle:

Determine the value of \( \theta \) measured in radians.
7. Consider the following right triangle:

\[ \text{\begin{tikzpicture}
\draw[thick] (0,0) -- (3,0) -- (3,3) -- (0,0);
\draw[fill=black!20] (1,0) to [out=90,in=180] (2,2) to [out=0,in=90] (1,0);
\end{tikzpicture}} \]

(a) If \( \theta = \frac{\pi}{3} \) radians, what is \( a \)?

(b) If \( a = 4 \), what is \( \theta \)? Give your answer in radians.

8. A mountain is between two cities A and B as shown in the following picture:

\[ \text{\begin{tikzpicture}
\draw[thick] (0,0) -- (4,0) -- (4,4) -- (0,0);
\end{tikzpicture}} \]

If the mountain is one mile high, determine the distance between the two cities.
9. King Kong is on top of a building as in the following picture:

If King Kong is 20 ft. tall, determine the height of the building.
10. Evaluate the following trigonometric functions. Give exact answers.

(a) \( \cos \left( \frac{3\pi}{4} \right) \)
(b) \( \tan \left( \frac{7\pi}{6} \right) \)
(c) \( \sin \left( \frac{11\pi}{3} \right) \)
(d) \( \sin \left( \frac{3\pi}{2} \right) \)
(e) \( \csc \left( \frac{11\pi}{6} \right) \)
(f) \( \cos \left( \frac{13\pi}{6} \right) \)

11. If \( \tan \theta = 1 \), what are the possible values for \( \theta \)? Give the exact answers.

12. The following circle has radius 1 and is centered at the origin:

What is \( \tan \theta \)?
13. John and Sally begin at the same location. John walks 5 miles at a bearing of N 47° E. Sally walks $x$ miles East followed by $y$ miles North, and ends at the same place as John. Determine the values of $x$ and $y$.

14. Ben walks due North for 2.3 miles. Then, he turns 54° degrees clockwise and walks for 1.8 miles. How far is he from where he started? (Hint: First determine how far North and East he has traveled; then use the Pythagorean theorem.)