Review Exercise Set 1

Exercise 1: Convert the given degree measurement into radians. Leave your answer as a multiple of π.

120°

Exercise 2: Convert the given radian measurement into degrees.

\[
\frac{9\pi}{4}
\]

Exercise 3: Use graph below to draw the given angle in standard position and state the quadrant in which the angle lies.

-195°
Exercise 4: Find a positive angle less than $360^\circ$ or $2\pi$ that is coterminal with the given angle.

\[
\frac{11\pi}{3}
\]

Exercise 5: Find the length of the arc on a circle with the given radius and intercepted by the given central angle. Express the answer in both terms of $\pi$ and in decimal form rounded off to two places.

\[
r = 4 \quad \text{and} \quad \theta = \frac{5\pi}{3}
\]
Review Exercise Set 1 Answer Key

Exercise 1: Convert the given degree measurement into radians. Leave your answer as a multiple of $\pi$.

$120^\circ$

Multiply the given degree measurement by $\frac{\pi}{180^\circ}$ and reduce

$$120^\circ \times \frac{\pi}{180^\circ} = \frac{120\pi}{180}$$

$$= \frac{2\pi}{3}$$

Exercise 2: Convert the given radian measurement into degrees.

$$\frac{9\pi}{4}$$

Multiply the given radian measurement by $\frac{180^\circ}{\pi}$ and reduce

$$\frac{9\pi}{4} \times \frac{180^\circ}{\pi} = \frac{1620^\circ \pi}{4\pi}$$

$$= 405^\circ$$

Exercise 3: Use graph below to draw the given angle in standard position and state the quadrant in which the angle lies.

$-195^\circ$

Since the angle measurement is negative it would be graphed going in a clockwise rotation placing it in the second quadrant.
Exercise 4: Find a positive angle less than 360° or $2\pi$ that is coterminal with the given angle.

\[
\frac{11\pi}{3}
\]

Subtract $2\pi$ from the given angle

\[
\frac{11\pi}{3} - 2\pi = \frac{11\pi}{3} - \frac{6\pi}{3} = \frac{5\pi}{3}
\]

Exercise 5: Find the length of the arc on a circle with the given radius and intercepted by the given central angle. Express the answer in both terms of $\pi$ and in decimal form rounded off to two places.

\[r = 4 \text{ and } \theta = \frac{5\pi}{3}\]

Since the angle measurement is already in radians, substitute $r$ and $\theta$ into the formula for arc length

\[
s = r\theta
\]

\[= 4 \text{ cm} \times \frac{5\pi}{3} \]

\[= \frac{20\pi}{3} \text{ cm} \approx 20.94 \text{ cm}\]