Chapter 11 Review

1.) Find the area of each shaded region. Round answers to the nearest tenth if necessary.

a.) \[9.75 \cdot 6.45 = 62.955\]

b.) \[(7.5 + 3.5) \cdot 4.5 \div 2 = 15.75\]

c.) \[\frac{140^2 - 24^2}{2} = 2112\]

d.) \[\frac{18.24}{2} = 9.12\]

e.) \[1250 - (2 \cdot \pi \cdot (12.5)^2) = 268.3\]

f.) \[8.75 \cdot 6.4 = 56.2\]

g.) \[\frac{96 \cdot 14.5}{2} = 696\]

h.) \[\frac{90 \cdot 45}{2} = 1687.5\]

i.) \[\frac{30 \cdot 2.55 \pi}{2} = 120.71\]

j.) \[\pi (13^2 - 7^2)\]

k.) \[20 \cdot 352 \div 2 = 583.7\]

2.) Regular hexagon PQRSTU has a perimeter of 20 meters. What is the area of PQRSTU? Round your answer to the nearest meter.

\[
\frac{20}{6} = 3.33, \quad \text{OR } \frac{10}{3} = 3.33\]

3.) The polygons are similar. Find the values of x and y.

a.) \[x + 1 = 3x + 3\]

b.) \[2x - 2 = 21\]

4.) Find the indicated measure. Round answers to the nearest tenth.

a.) Length of arc AB

b.) Circumference of \(\odot L\)

c.) Radius of \(\odot R\)

d.) Length of arc XY
5.) Find the circumference of the circle with equation \((x - 1)^2 + (y + 6)^2 = 15.\)

\[ C = 2\pi \sqrt{15} \approx 34.3 \text{ m} \]

6.) The area of \(\bigcirc D\) is 113.1 m². The area of sector \(ADB\) is 34.6 m². Find each indicated measure.

a.) Radius of \(\bigcirc D\) 
\[ \frac{113.1}{\pi} = \frac{x^2}{110.1} \]
\[ x = 10.9 \]

b.) Circumference of \(\bigcirc D\)
\[ \frac{34.6}{x} = \frac{360}{37.7} \]
\[ x = 29.9 \]

b.) Measure of Arc \(AB\)
\[ \frac{x}{37.7} = \frac{29.9}{360} \]
\[ x = 210.1 \]

d.) Length of Arc \(ACB\)
\[ \frac{360 - 110.1}{37.7} = \frac{249.9}{360} \]
\[ x \approx 211.7 \text{ m} \]

7.) Find the area of the shaded region. Round answers to the nearest tenth in necessary.

a.) Whole Circle: \(9\pi\)
\[ 20.21 \approx 420 \]

b.) Next Circle: \(4\pi\)
\[ 20^2 + 21^2 = 841 \]
\[ \sqrt{841} = 29 \]

8.) What is the area of a regular 15-gon that has a radius of 10 feet?
\[ \frac{360}{15} = 24 \]
\[ 9 = \frac{1}{2} \times 12 \times x \]
\[ x = 2.3 \times 2 \]
\[ = 4.6 \]

9.) What is the area of a regular 20-gon with a side length of 12 cm?
\[ \frac{360}{20} = 18.9^\circ \]
\[ 9 = \frac{1}{2} \times 37.88 \]
\[ \approx 37.88 \]

10.) Find the probability that a randomly chosen point in the figure lies in the shaded region.

a.) \[ 17^2 - 8^2 = 129 \]
\[ \frac{5.15}{60} = 0.085 \]

b.) \[ 18 \]
\[ 16 - 10 = 6 \]
\[ 18 - 10 = 8 \]

11.) A bike tire has a diameter of about 26 inches. If you ride a straight distance of 75 feet, how many revolutions will the bike tire make? Round your answer to the nearest revolution.

\[ 26 \times \frac{81.68}{31.81} = 900 \]
\[ 900 \div 30 = 30 \text{ Revs.} \]

12.) A park walkway surrounds a fountain as shown. Find the area of the shaded walk.
Round answers to the nearest foot. 
\[ 42 \times \text{circle: } 3.14 \times 15^2 = 706.5 \]
\[ \frac{2}{3}, \frac{353.25}{2} = 176.62 \]
\[ \text{circle: } \pi \times 9^2 = 254.5 \]
\[ (1275 + 353.25) - 254.5 = 1373.75 \]