1) Name the following:

    a) Circle

      Circle D

    b) Radius

      $\overline{DB}$ OR $\overline{DA}$ OR $\overline{DC}$

    c) Diameter

      $\overline{AC}$

(figure: Circle D with points A, B on top, D at center labeled 8cm, C at bottom right)
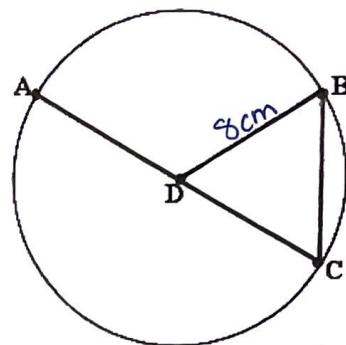
2) If Segment BD (in the image above) is 8 cm in length, calculate the following:

    a) <u>Exact</u> Area of the circle

$$A = \pi r^2$$
$$A = \pi \cdot 8^2$$
$$\boxed{A = 64\pi \ cm^2}$$

    b) <u>Exact</u> Circumference of the circle

$$C = \pi \cdot 2 \cdot r$$
$$C = \pi \cdot 2 \cdot 8$$
$$\boxed{C = 16\pi \ cm}$$

radius: 11.5 m

3) If a circle has a diameter of 23m (meters), calculate the following:
(use the <u>π button</u> and <u>round your answer to the nearest hundredth</u>)

    a) Area of the circle

$$A = \pi \cdot 11.5^2$$
$$A = \pi \cdot 132.25$$
$$A = 415.475...$$
$$\boxed{A = 415.48 \ m^2}$$

    b) Circumference of the circle

$$C = \pi \cdot 23$$
$$C = 72.256...$$
$$\boxed{C = 72.26 \ cm}$$

*Write and solve a **circle equation** to solve for the radius or the diameter:*

4) If the exact area of a circle is 361π cm², solve for the radius

$$A = \pi r^2$$
$$361\pi = \pi r^2$$
$$\frac{361\cancel{\pi}}{\cancel{\pi}} = \frac{\cancel{\pi} r^2}{\cancel{\pi}}$$
$$\sqrt{361} = \sqrt{r^2}$$
$$19 = r$$

$$\boxed{19\,cm = r}$$

5) If the approximate circumference of a circle is 23.55 ft, solve for the radius   (use 3.14 for π)

$$C = \pi \cdot 2 \cdot r$$
$$23.55 = 3.14 \cdot 2 \cdot r$$
$$\frac{23.55}{6.28} = \frac{6.28\,r}{6.28}$$
$$3.75 = r$$

$$\boxed{3.75\,ft = r}$$

6) One small circle is completely inside a larger circle. Both circles share the same center point. Calculate the area of the shaded region.

13 cm

6 cm

$$\overset{13}{\bigcirc} - \overset{6}{\bigcirc}$$
$$3.14 \cdot 13^2 - 3.14 \cdot 6^2$$
$$530.66 - 113.04$$

$$\boxed{417.62\,cm^2 = shaded\ region}$$