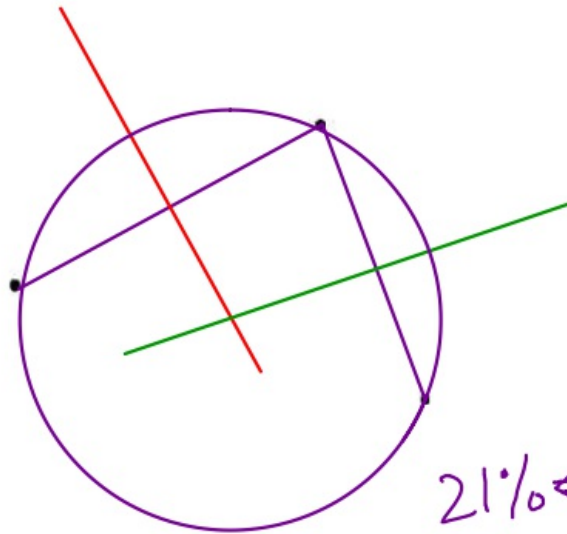
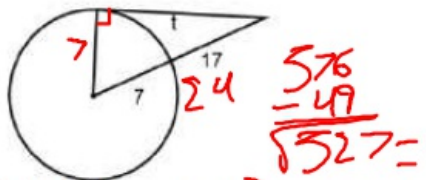


Task 1: Construct a circle that passes through the three non-collinear points given below.



Task 2: Review: Solve for the variable in each problem.



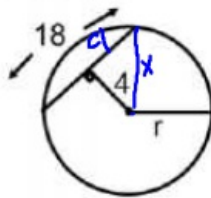
$$7^2 + b^2 = 24^2$$

$$49 + b^2 = 576$$

$$b^2 = 527$$

$$b = \sqrt{527} \approx 22.96$$

$t = 23$

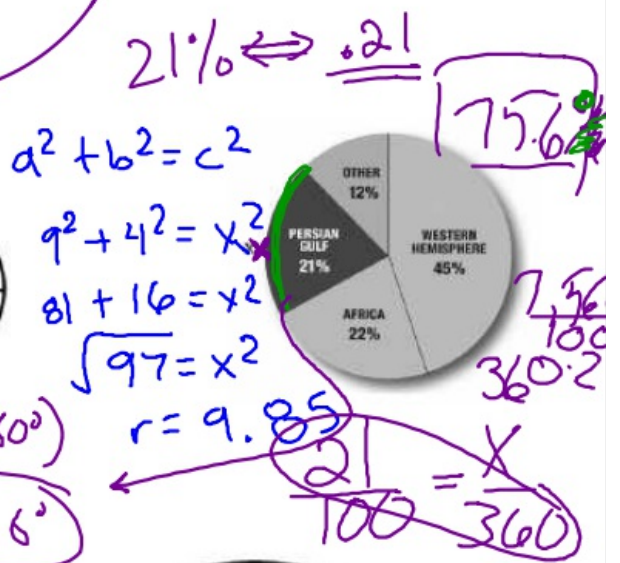


$$9^2 + 4^2 = x^2$$

$$81 + 16 = x^2$$

$$\sqrt{97} = x$$

$$r = 9.85$$



Task 3: Arc Length:

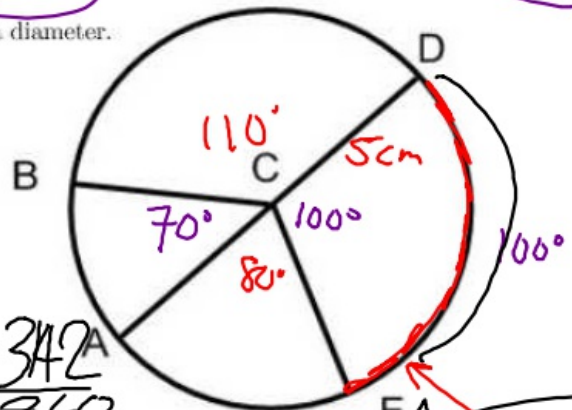
In  $\odot C$ ,  $m\angle BCD = 110^\circ$ ,  $m\angle ACE = 80^\circ$ , and  $CE = 5\text{cm}$ .  $AD$  is a diameter.

1. What is the circumference of  $\odot C$ ?  $C = 2\pi r$   
 $31.42$   $C = 2\pi(5)$

2. Find the missing central angles.

3. Find the length of  $\overline{DE}$

$$\frac{x}{31.42} \times \frac{100}{360} = \frac{360x}{360} = \frac{3142}{360}$$



4. Summarize with a formula for arc length:

arc  $\rightarrow$  central  $\angle$   
total  $\rightarrow$   $360^\circ$

$$\frac{\text{central } \angle}{360^\circ} \cdot 2\pi r$$

part we want  $\uparrow$  total length (circumf.)

$DE = 8.72$

a sliced area of a circle.

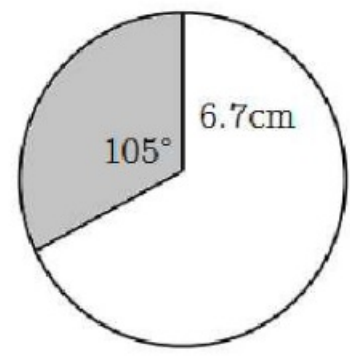
Task 4: Sector Area: Refer to the figure at the right.

1. What is the area of the circle?

$$\pi r^2 = \pi (6.7)^2 \approx 141 \text{ cm}^2$$

2. Find the area of the shaded portion (called a sector)

$$\frac{105}{360} \times 141.02 = 41.13$$



3. Summarize your process with a formula for Sector Area:

$$\frac{\text{Central Angle}}{360} \times \pi \cdot r^2$$

part we want      total area

Task 5: Circular Segment Area

A circular segment is a lens-shaped region of a circle that is bounded by an arc and a chord.

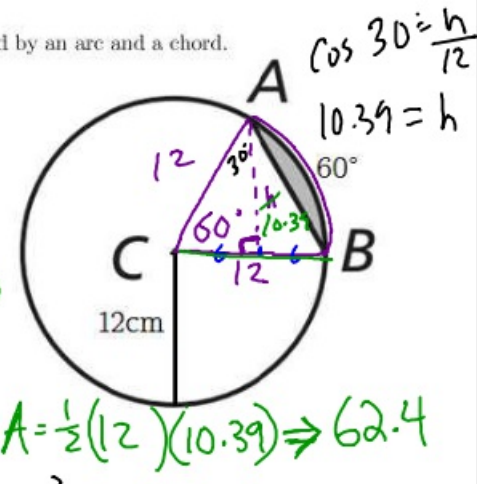
1. Find the area of sector ACB.

$$\frac{60^\circ}{360^\circ} \cdot \pi \cdot 12^2 = 75.3 \text{ cm}^2$$

2. Find the area of  $\triangle ACB$ .

$A = \frac{1}{2}bh$

$a^2 + b^2 = c^2$   
 $6^2 + h^2 = 12^2$   
 $36 + h^2 = 144$   
 $h^2 = 108$   
 $h = 10.39 \text{ cm}$



3. Find the area of the circular segment shown.

$$75.3 \text{ cm}^2 - 62.4 \text{ cm}^2 = 12.96 \text{ cm}^2$$

4. Summarize your method:

$$\text{Segment Area} = \text{Sector Area} - \text{Triangle Area}$$

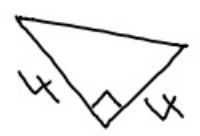
5. Exit Ticket: Find the area of the circular segment:

Sector

$$\frac{90}{360} \cdot \pi (4)^2 = 12.56 \text{ m}^2$$

Triangle

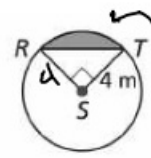
$$\frac{1}{2}(4)(4) = 8$$



$\Rightarrow$

$$12.56 - 8 = 4.56 \text{ m}^2$$

$$4.56 \text{ m}^2$$



$\Downarrow$

