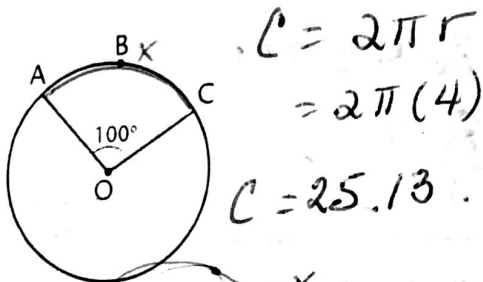① In each case, give the length of arc ABC.

a) Radius = 4 dm
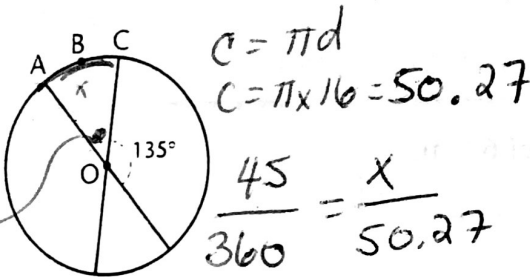
$C = 2\pi r$
$= 2\pi(4)$
$C = 25.13$

X=6.98 dm

Answer: $\dfrac{100}{360} = \dfrac{x}{25.13}$ cross multiply

b) Circumference = 23.6 cm

$\dfrac{266}{360} = \dfrac{x}{23.6}$

$\boxed{17.4\,cm}$

Answer:

c) Diameter = 16 mm

$C = \pi d$
$C = \pi \times 16 = 50.27$

$\dfrac{45}{360} = \dfrac{x}{50.27}$

180-135 = 45°

Answer: $x = 6.28\,mm$
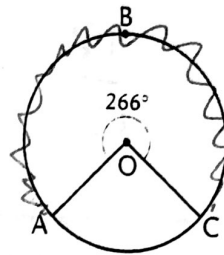
d) Radius = 7.6 cm
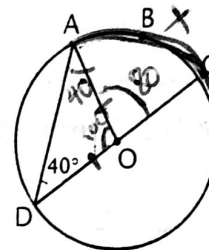
$C = 2\pi r$
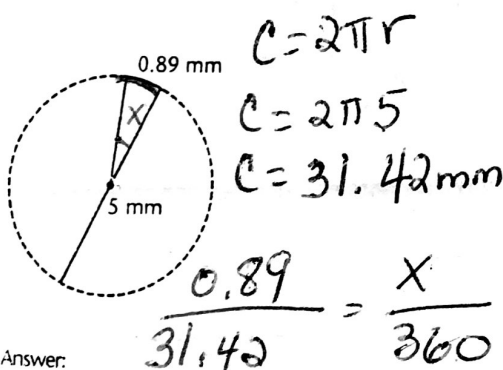$= 2\pi(7.6)$
$= 47.75\,cm$

$\dfrac{80}{360} = \dfrac{x}{47.75}$

Answer: $x = 10.61\,cm$

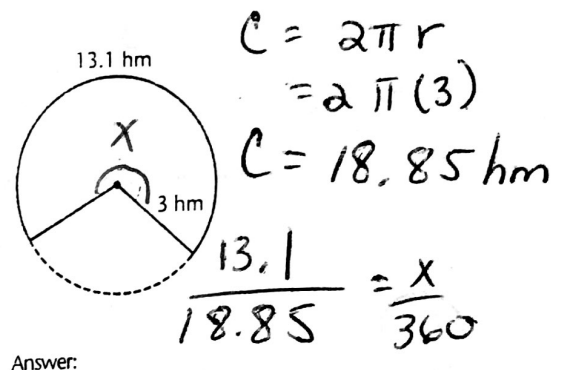② Determine the measure of the central angle to the nearest hundredth.

a)

0.89 mm, 5 mm

$C = 2\pi r$
$C = 2\pi 5$
$C = 31.42\,mm$

$\dfrac{0.89}{31.42} = \dfrac{x}{360}$

Answer: $x = 10.2°$

b)

13.1 hm, 3 hm

$C = 2\pi r$
$= 2\pi(3)$
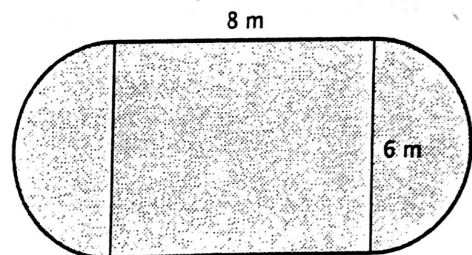$C = 18.85\,hm$

$\dfrac{13.1}{18.85} = \dfrac{x}{360}$

Answer: $x = 250.19°$

③

The straight section of a pool is 8 m long. The semi-circle at each end has a diameter of 6 m. Calculate the perimeter of the pool.

previously done (p.66)

34.85 m.

8 m

6 m

66a

④ In each case, determine the radius of the central angle based on the information you have been given. $\angle.3_1$

a) A central angle of 50° intercepts an arc of 12 cm.

$$\frac{50}{360} = \frac{12}{C} \qquad C = 86.4 = 2\pi r$$
$$\frac{86.4}{2\pi} = r$$

Answer: $r = 13.75\,cm$

b) A circle is divided into 5 congruent arcs each measuring 21 mm.

$$\frac{b}{3} \qquad C = 5 \times 21$$
$$C = 105 = 2\pi r$$
$$\frac{105}{2\pi} = r =$$

Answer: 16.71 mm

c) A central angle of 145° intercepts an arc of 6.5 m.

$$\frac{145}{360} = \frac{6.5}{C} \qquad C = 16.14$$
$$\frac{C}{2\pi} = r \qquad =$$

Answer: $2.57\,m$

d) An arc of 235° has a length of 7.5 dm.

$$\frac{235}{360} = \frac{7.5}{C} \qquad C = 11.4893$$
$$\frac{C}{2\pi} = r \quad r =$$

Answer: $1.83\,dm$
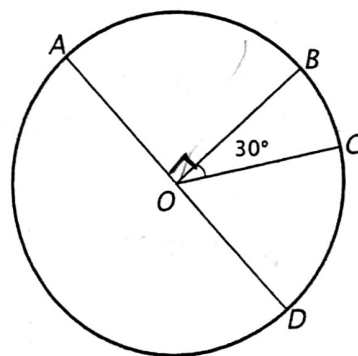
⑤

This circle has a circumference of 72 cm. Determine:

a) m $\widehat{BC}$. $\underline{\quad 6 \quad cm}$

b) m $\angle COD$. $\underline{\quad 60° \quad}$

c) m $\widehat{AD}$. half $\underline{circum\ \ 36\,cm}$

d) m $\angle AOB$. $\underline{\quad 90° \quad}$

e) m $\widehat{ABC}$. $\underline{\quad 24cm \quad}$
   ↓

e) $\frac{120}{360} = \frac{x}{72}$

a) $\frac{30}{360} = \frac{x}{72}$

66b