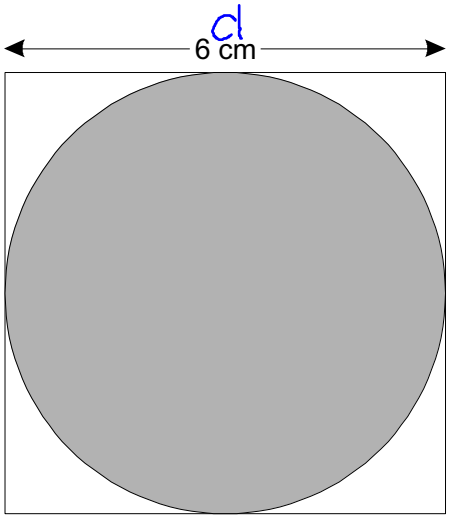
Name: _____ Date: _____

Circles Extra Practice

1) Find the shaded area



$d = 6$

$r = \frac{d}{2} = \frac{6}{2} = 3\text{cm}$

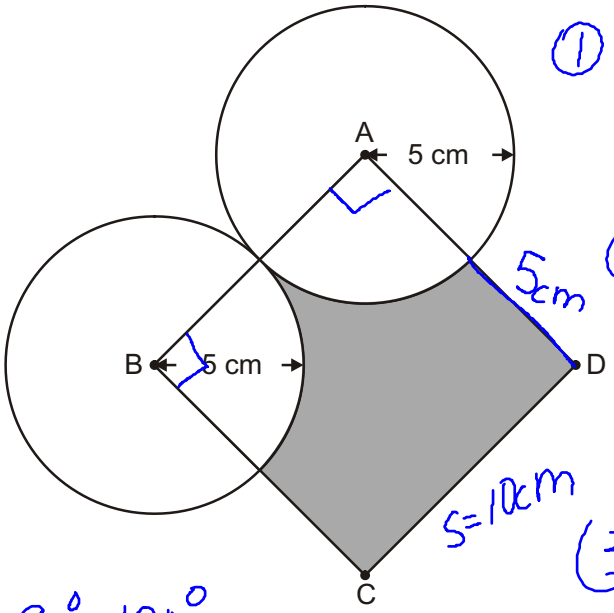
$A_O = \pi r^2$

$A_O = \pi 3^2$

$A_O = 9\pi$

$A_O = 28.26\text{cm}^2$

2) The diagram shows two circles and a square, ABCD. A and B are the centres of the circles. The radius of each circle is **5 cm**.
Calculate the area of the **shaded part** of the square.



① $A_\square = s^2$

$A_\square = 10^2 = 100\text{cm}^2$

② $A_O = \pi r^2$

$= \pi 5^2$

$= 25\pi$

$A_O = 78.5\text{cm}^2$

5cm

5=10cm

$90^\circ + 90^\circ = 180^\circ$

③ $\frac{\angle}{360^\circ} = \frac{S}{A}$

$\frac{180^\circ}{360^\circ} = \frac{S}{78.5}$ ← both

39.25cm^2 = both sectors together

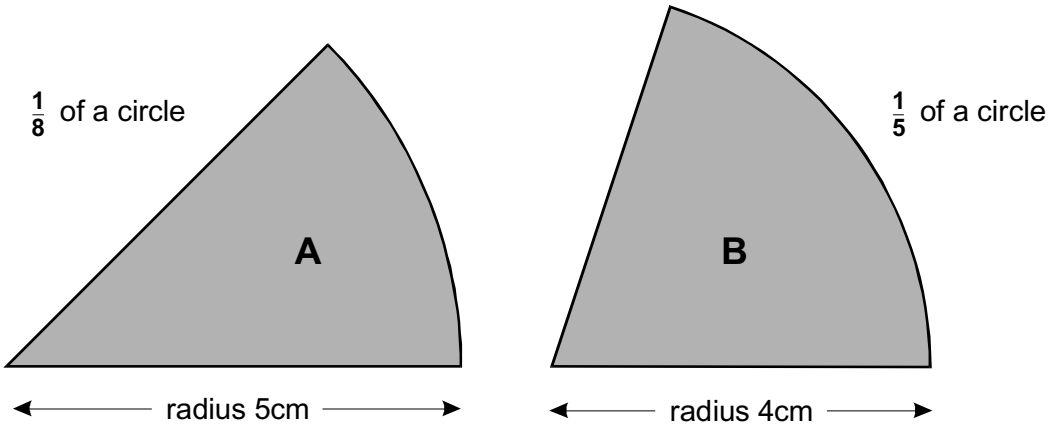
④ $100 - 39.25 = 60.75\text{cm}^2$

Shaded area $= 60.75\text{cm}^2$

Name: _____ Date: _____

3) Which is Bigger?

The diagram shows parts of two circles, sector A and sector B



(a) Which sector has the **bigger area**?

Sector B has a bigger area

Show working to explain your answer.

$A_{OA} = \pi r^2$
$= \pi 5^2$
$= \pi 25$
$= 78.25$

$\frac{1}{8} \times 78.25 = 9.8125 cm^2$

$A_{OB} = \pi r^2$
$= \pi 4^2$
$= 16\pi$
$= 50.24 cm^2$

$\frac{1}{5} \times 50.24 = 10.048 cm^2$

(b) The perimeter of a sector is made from two straight lines and an arc.

Which sector has the **bigger perimeter**?

Perimeter A is bigger

Show working to explain your answer.

① $\frac{1}{8} \times 360° = 45°$

② $C = 2\pi r$
$= 2\pi 5$
$= 10\pi$
$= 31.4$

③ $\frac{\angle}{360°} = \frac{arc}{C}$

$\frac{45°}{360°} = \frac{arc}{31.4}$

$arc = 3.925 cm$

④ $P_A = 5 + 5 + 3.925$

$P_A = 13.925 cm$

① $\frac{1}{5} \times 360 = 72°$

② $C = 2\pi r$
$= 2\pi 4$
$= 8\pi$
$= 25.12$

③ $\frac{\angle}{360°} = \frac{arc}{C}$

$\frac{72°}{360°} = \frac{arc}{25.12}$

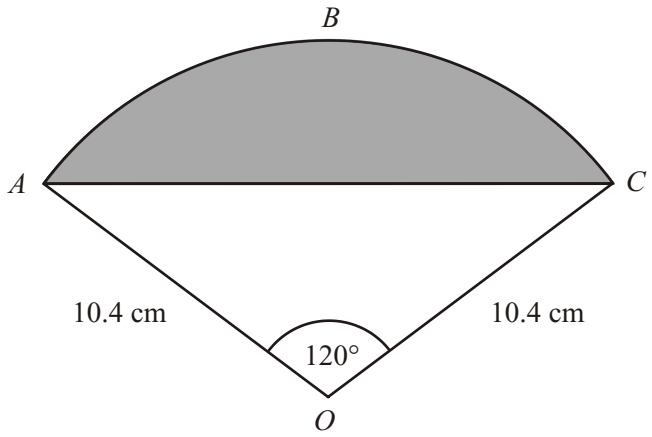
$arc = 5.024$

④ $P_B = 4 + 4 + 5.024$

$= 13.024 cm$

Name: _____ Date: _____

4)



The diagram shows a sector *OABC* of a circle with centre *O*.
OA = *OC* = 10.4 cm.
Angle *AOC* = 120°.

(a) Calculate the length of the arc *ABC* of the sector.
Give your answer correct to 3 significant figures.

① $C = 2\pi r$
$C = 2\pi(10.4)$
$C = 20.8\pi$
$C = 65.312\text{cm}$

② $\frac{\angle}{360^\circ} = \frac{arc}{C}$
$\frac{120^\circ}{360^\circ} = \frac{arc}{65.312}$

$arc = 21.77\text{cm}$

.....cm

(b) Calculate the area of the shaded segment *ABC*.
Give your answer correct to 3 significant figures.

Skip

.....cm^2

Name: _____ Date: _____

5) A circle has a **circumference** of **120cm**. What is the **area** of the circle?

Show your work.

① $C = \pi d$

$\frac{120}{\pi} = \frac{\pi d}{\pi}$

$38.22 = d$

② $r = \frac{d}{2} = \frac{38.22}{2} = 19.11\text{cm}$

③ $A = \pi r^2$

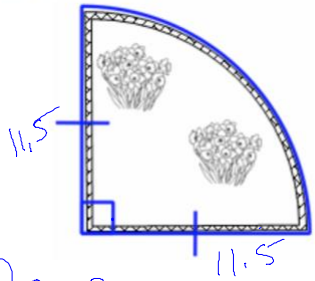
$= \pi 19.11^2$

$= \pi 365.19$

$= 1146.70\text{cm}^2$

6) Janine has a garden in the corner of her yard and wishes to line it with bricks, as shown in the diagram below. The area of her garden is 103.9 dm². Sector

What is the total length of the bricks Janine will need to wrap around her entire garden exactly once? Round the answer to the nearest tenth.



① $\frac{\angle}{360^\circ} = \frac{S}{A}$

$\frac{90^\circ}{360^\circ} = \frac{103.9}{A}$

$415.6 = A$ dm²

② $A = \pi r^2$

$\frac{415.6\text{cm}^2}{\pi} = \frac{\pi r^2}{\pi}$

$132.36 = r^2$

$\sqrt{132.36} = \sqrt{r^2}$

$11.5\text{dm} = r$

③ $C = 2\pi r$

$C = 2\pi(11.5)$

$C = 23\pi$

$C = 72.22\text{dm}$

④ $\frac{\angle}{360^\circ} = \frac{arc}{C}$

$\frac{90^\circ}{360^\circ} = \frac{arc}{72.22}$

$arc = 18.055\text{dm}$

⑤ $P = 11.5 + 11.5 + 18.055$

$P = 41.055\text{dm}$