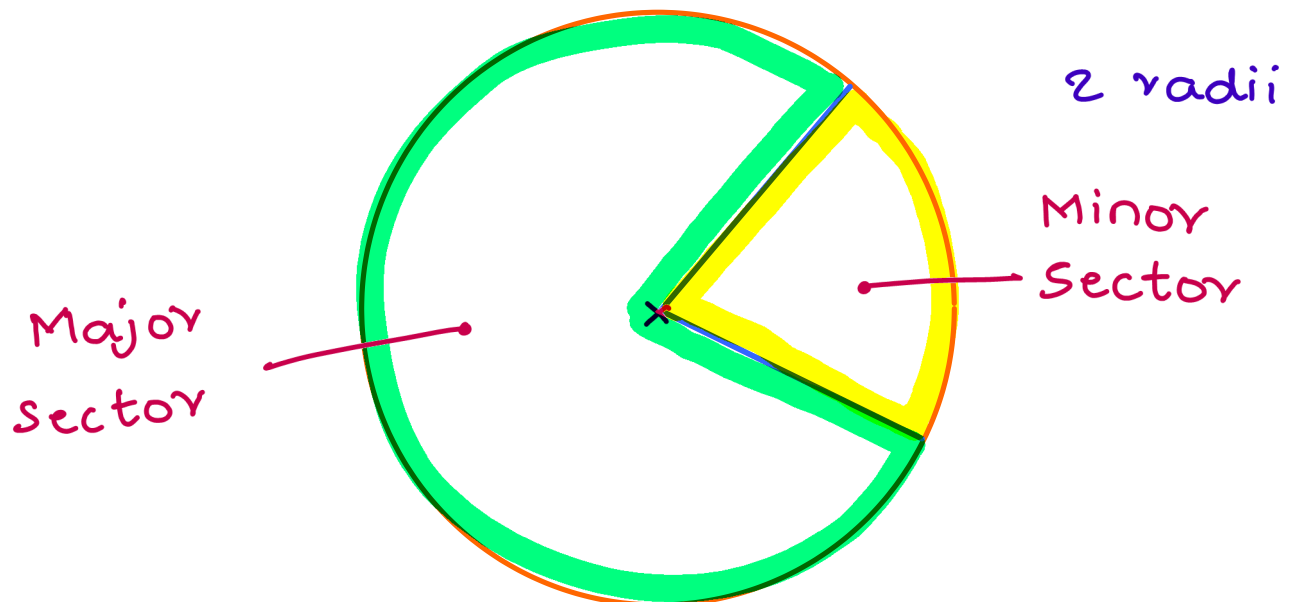
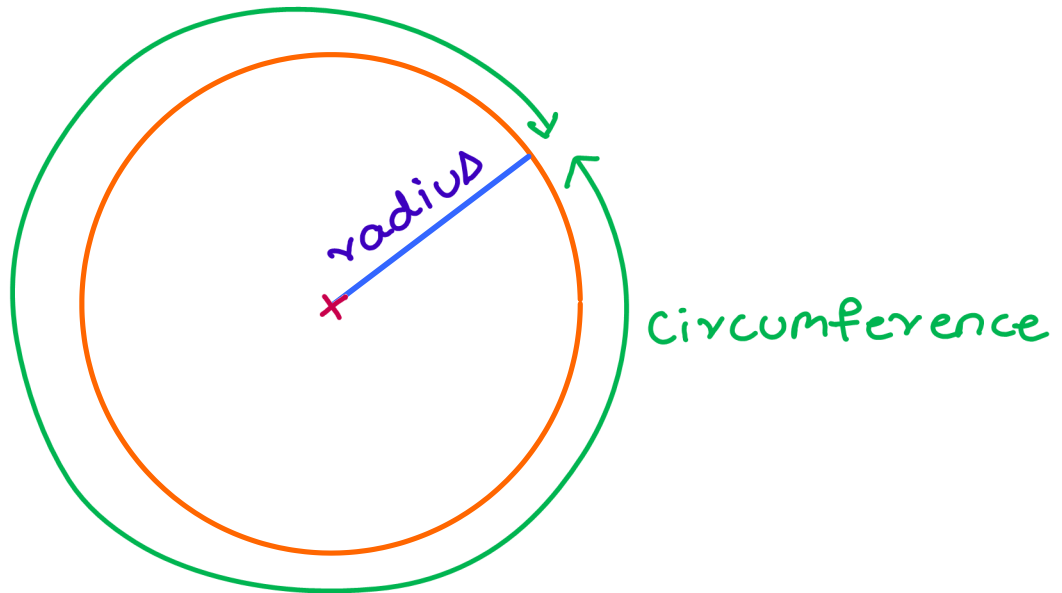
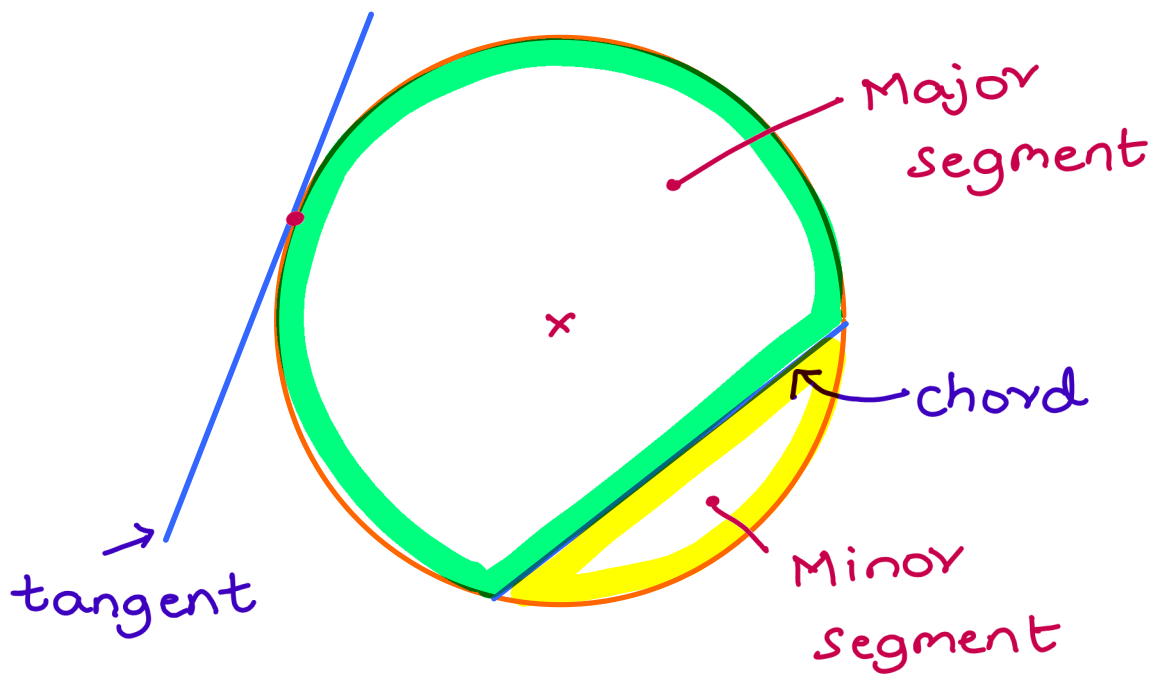


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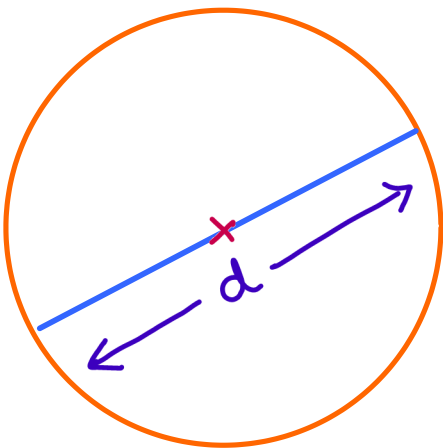
Circled:





Area of circle:

$$\pi(\text{pi}) = 3.14\dots \approx \frac{22}{7}$$



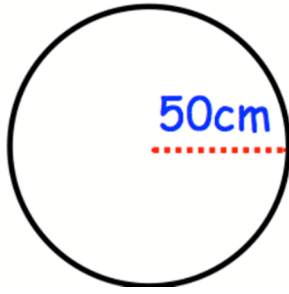
$$C = \pi \times d$$

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

$$C = 2\pi r$$

Area,

$$A = \pi r^2$$



$$r = 50 \text{ cm}$$

$$A = \pi r^2$$

$$= \pi \times 50^2$$

$$A = 2500\pi \text{ cm}^2 \text{ (Exact value)}$$

$$A = 7854.0 \text{ cm}^2$$

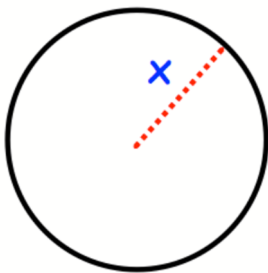
$$C = 2\pi r = 2\pi \times 50$$

$$= 100\pi \text{ cm}$$

$$C = 314 \text{ cm (3 s.f.)}$$



Area =  $65\text{cm}^2$ , Find  $C$ .



$$\frac{\pi r^2}{\pi} = \frac{65}{\pi}$$

$$\sqrt{r^2} = \sqrt{\frac{65}{\pi}}$$

$$r = \sqrt{\frac{65}{\pi}} = 4.55 \text{ cm}$$

(3 s.f.)

$$C = 2\pi r = 2 \times \pi \times 4.54 \dots$$

$$C = 28.6 \text{ cm}$$



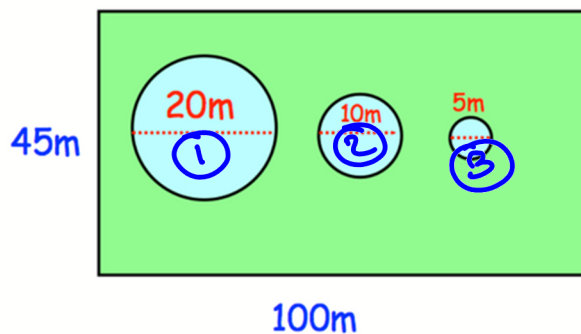
A rectangular lawn is 100m long and 45m wide.

There are 3 circular ponds, with diameters of 20m, 10m and 5m respectively.

Mrs Jones wants to cover the lawn with grass seed.

Each packet of grass seed covers  $50\text{m}^2$  and costs £1.49

How much will it cost Mrs Jones to cover the lawn with grass seed?



$$\text{Area of rectangle} = 45 \times 100 = 4500 \text{ m}^2$$

$$A_1 = \pi r^2 = \pi \times 10^2 = 100\pi \text{ m}^2$$

$$A_2 = \pi \times 5^2 = 25\pi \text{ m}^2$$

$$A_3 = \pi \times 2.5^2 = 6.25\pi \text{ m}^2$$

$$\left. \begin{array}{l} A_1 \\ A_2 \\ A_3 \end{array} \right\} \text{sum} = 131.25\pi \text{ m}^2$$

$$\text{Grass area} = 4500 - 131.25\pi$$

$$= 4087.665964 \text{ m}^2$$

$$\# \text{ of packets} = \frac{4087.665964}{50} = 81.75 \dots$$

$$82 \text{ packets} \times £1.49$$

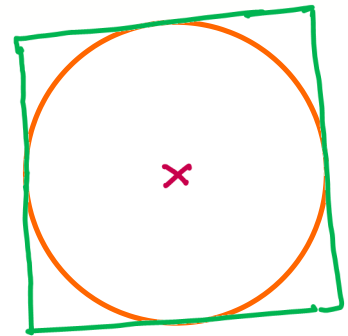
$$= £122.18$$

- ✳ A circular plaque of diameter 6cm is cut from a square piece of metal with side length 6cm.

What percentage of the metal is wasted?

$$A. \text{ Square} = 36 \text{ cm}^2$$

$$A. \text{ circle} = \pi \times 3^2 = 9\pi \text{ cm}^2$$



$$\text{Waste} = 36 - 9\pi = 7.725666118 \text{ cm}^2$$

$$\% = \frac{7.725666118}{36} \times 100$$

$$= 21.46\%$$



A bicycle wheel has a diameter of 62cm. The wheel makes 80 complete revolutions.

How far has the bicycle travelled?

Give your answer in metres.

$$r = 31 \text{ cm}$$



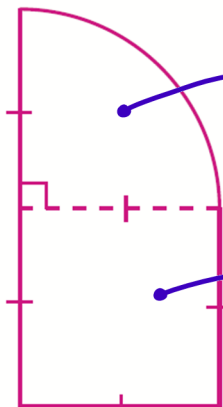
$$C = 2\pi r = 2\pi \times 31 = 62\pi \text{ cm}$$

$$\text{dist.} = 62\pi \times 80$$

$$= 4960\pi \text{ cm}$$

$$= \frac{15,582 \text{ cm}}{100}$$

$$= 155.82 \text{ m}$$

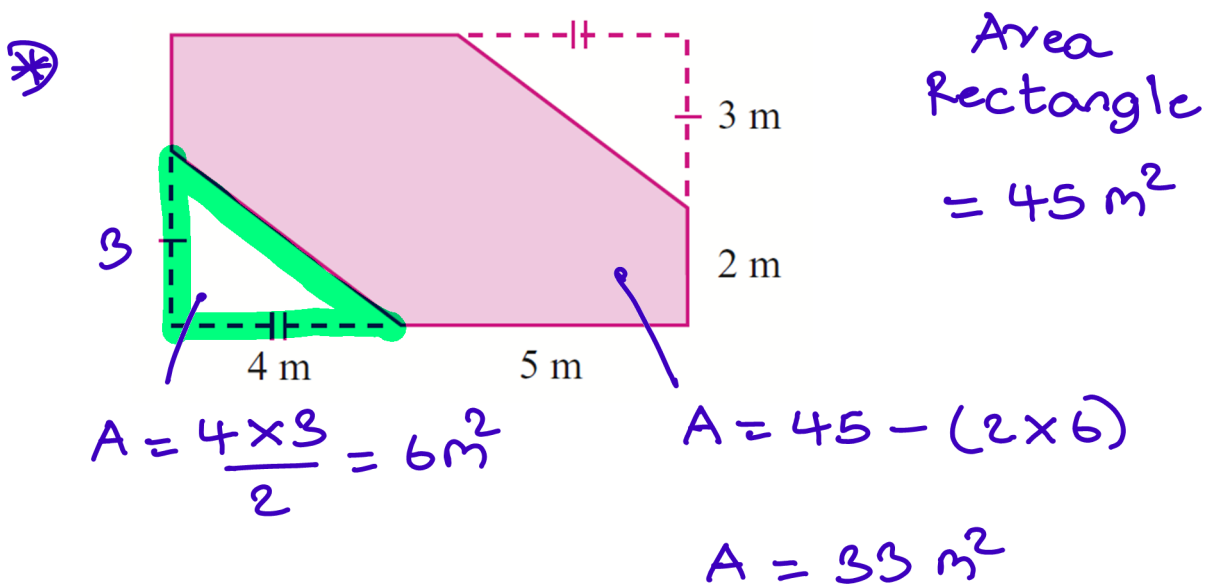
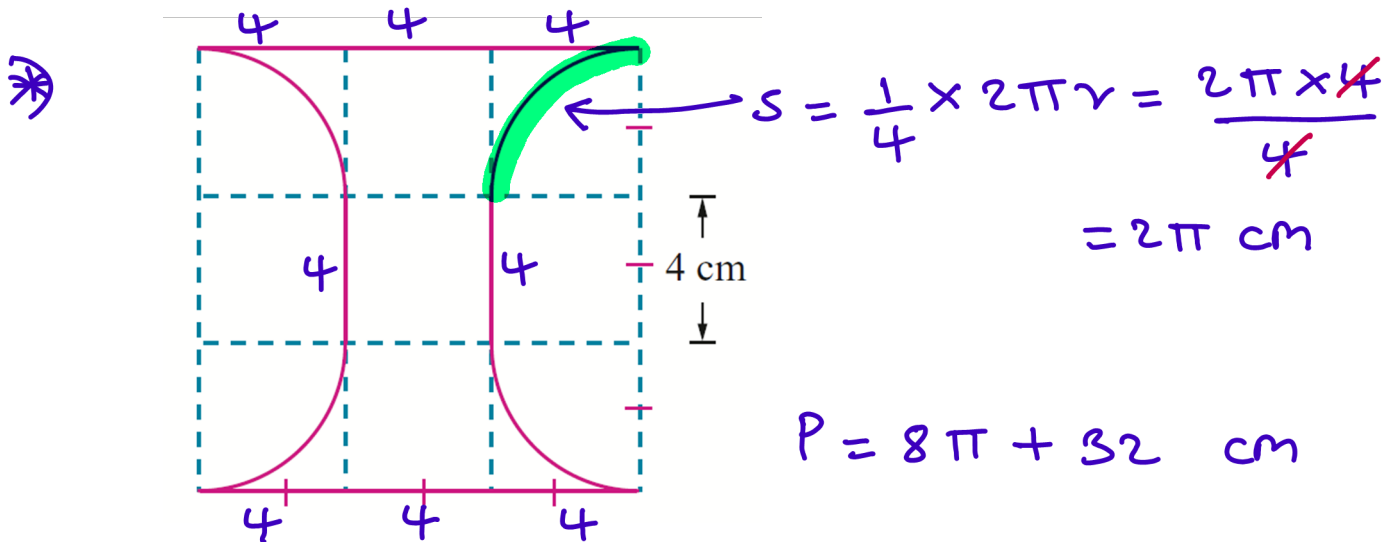
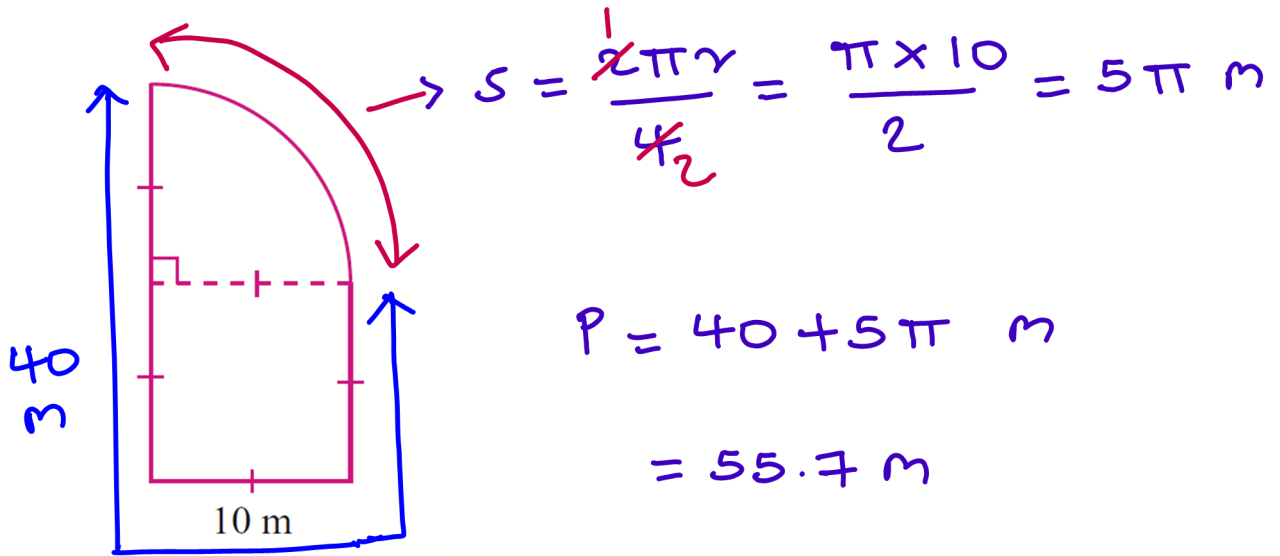


10 m

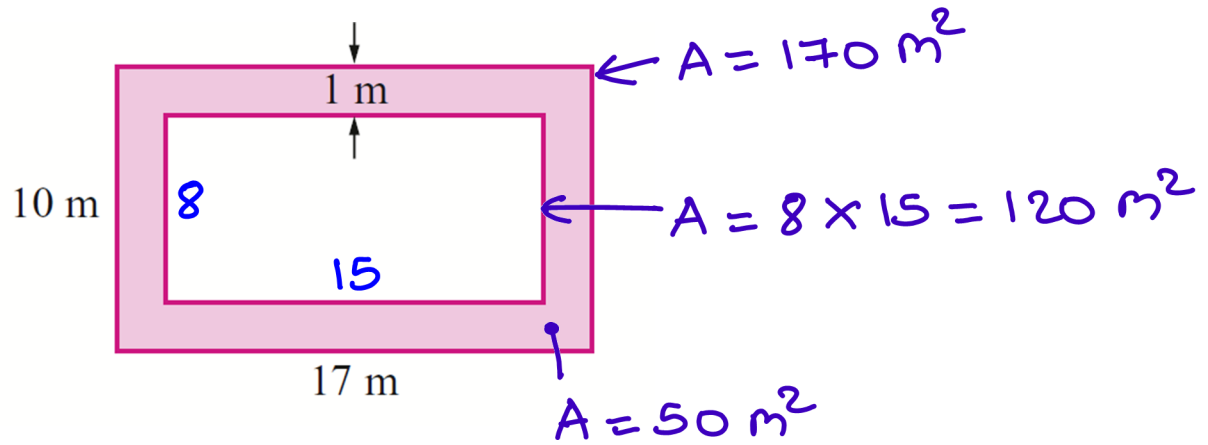
$$A = \frac{1}{4} \times \pi r^2 = \frac{\pi \times 10^2}{4} = 25\pi \text{ m}^2$$

$$A = 100 + 25\pi$$

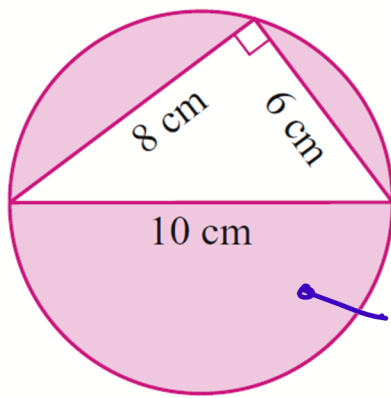
$$= 178.5 \text{ m}^2$$



\*)



\*)



$$\begin{aligned} \text{Area of circle} &= \pi r^2 = \pi \times 5^2 \\ &= 25\pi \text{ cm}^2 \end{aligned}$$

$$A = 25\pi - 24 \text{ cm}^2$$

$$A = \frac{6 \times 8}{2} = 24 \text{ cm}^2$$