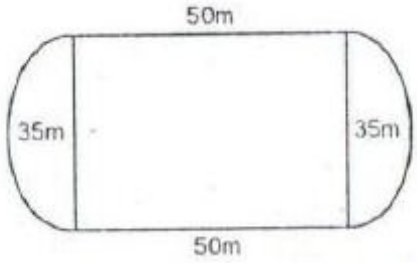
Question 43:



Area of rectangular lawn in the middle
$= (50 \times 35)\ m^2 = 1750\ m^2$

Radius of semi circles $= \frac{35}{2} = 17.5$ m

Area of two semicirdes = 2(area of semi circle)

$$= \left[2\left(\frac{1}{2}\pi r^2\right)\right] m^2$$

$$= \left(2 \times \frac{1}{2} \times \frac{22}{7} \times 17.5 \times 17.5\right) m^2$$

$$= 962.5\ m^2$$

Area of lawn = (area of rectangle + area of semi circle)
$= (1750 + 962.5)\ m^2 = 2712.5\ m^2$

Question 44:

Area of plot which cow can graze when r = 16 m is πr^2

$$= \left(\frac{22}{7} \times 16 \times 16\right) m^2$$

$$= 804.5\ m^2$$

Area of plot which cow can graze when radius is increased to 23 m

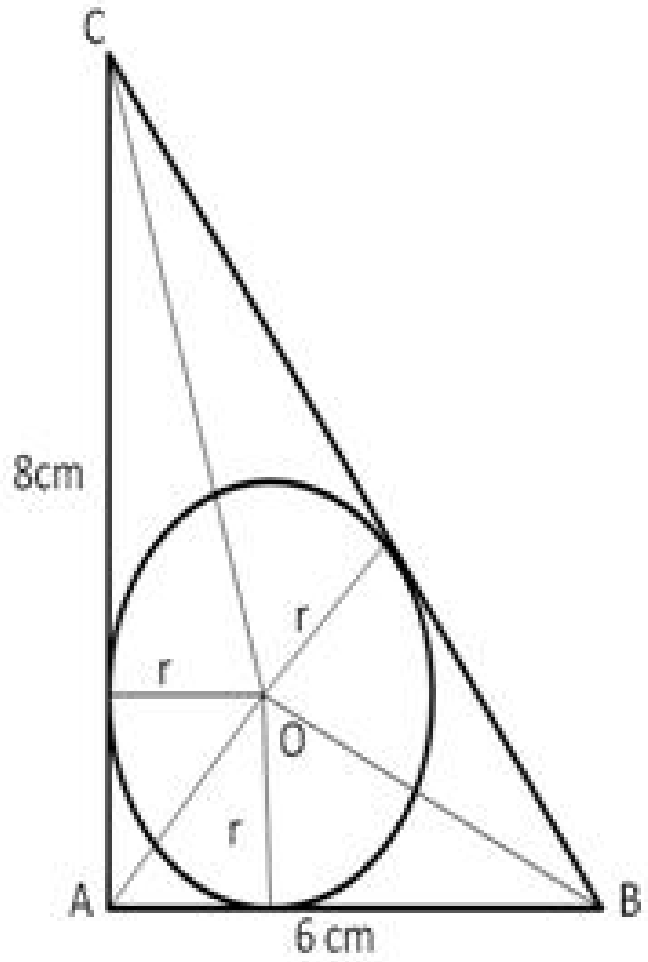
$$= \left(\frac{22}{7} \times 23 \times 23\right) m^2$$

$$= 1662.57\ m^2$$

Additional ground = Area covered by increased rope - old area

$= (1662.57 - 804.5)\ m^2 = 858\ m^2$

Question 45:



Given: ABC is right angled at A with AB = 6 cm and AC = 8 cm

$$BC = \sqrt{AB^2 + AC^2} = \sqrt{(6)^2 + (8)^2}\ \text{cm}$$

$$= \sqrt{36 + 64}\ \text{cm}$$

$$BC = \sqrt{100}\ \text{cm} = 10\ \text{cm}$$

Let us join OA, OB and OC

ar(ΔAOC) + ar(ΔOAB) + ar(ΔBOC) = ar(ΔABC)

$$\Rightarrow \left(\frac{1}{2} \times 8 \times r\right) + \left(\frac{1}{2} \times 6 \times r\right) + \left(\frac{1}{2} \times 10 \times r\right)$$

$$= \frac{1}{2} \times 6 \times 8$$

$$4r + 3r + 5r = 24$$

$$12r = 24$$

$$\Rightarrow r = \frac{24}{12} = 2$$

Radius = 2 cm

********** END **********