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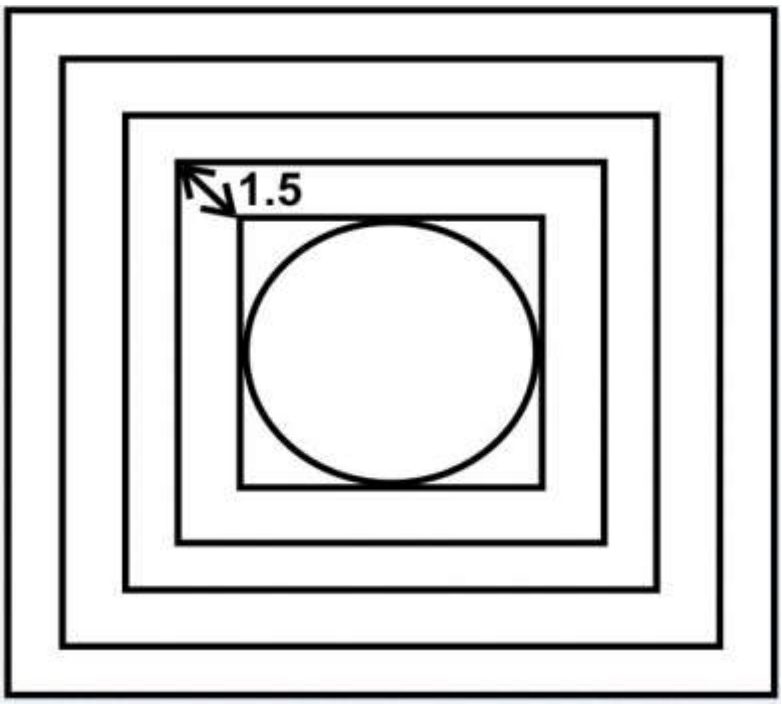
(Maths)

SSC CGL SPECIAL

MENSURATION

Questions: It is given that there are five concentric squares. If the area of the circle inside the smallest square is 154 square cm and the distance between the corresponding corners of consecutive squares is 1.5 cm, find the difference in the areas of the outermost and innermost squares.

Solutions:



Area of circle = 154 cm^2.

Radius of circle = $\sqrt{\frac{154}{\pi}} = 7$

Side of Square = Diameter

D = $14\sqrt{2}$

Diagonal of outermost Square

$14\sqrt{2} + (4\times(1.5 + 1.5)) = 26\sqrt{2}$

Area of inner Square =

$\frac{(14\sqrt{2})^2}{2} = 196\ cm^2$

Area of outer Square =

$\frac{(26\sqrt{2})^2}{2} = 676\ cm^2$

Difference between inner square and outer Square =

$676 - 196 = 480\ cm^2$