

9th - PT - 6M

Section - A

1) We know that angles in same segment of a circle are equal.

$$\angle CAO = \angle ODB = x$$

$$\text{Also, } \angle ODB + \angle DOB + \angle OBD = 180^\circ$$

$$\Rightarrow x + 90^\circ + y = 180^\circ$$

$$\therefore x + y = 90^\circ$$

2) The pencil must be placed along diagonal to get maximum length.

$$\begin{aligned} \therefore \text{Req. length} &= \sqrt{1^2 + 6^2 + 6^2} \\ &= \sqrt{8^2 + 6^2 + 5^2} \\ &= \sqrt{64 + 36 + 25} \\ &= 5\sqrt{5} \text{ cm} \end{aligned}$$

Section - B

3) Circumference of a cone = $2\pi r$
 $44 = 2 \times \frac{22}{7} \times r$

$$\therefore r = 7 \text{ m}$$

$$\rightarrow \text{Slant height (l)} = \sqrt{r^2 + h^2}$$

$$= \sqrt{9^2 + 7^2}$$

$$= \sqrt{81 + 49}$$

$$= \sqrt{130}$$

$$\approx 11.40 \text{ m}$$

$$4) r = \frac{50}{2} \text{ cm} = \frac{50}{2 \times 100} \text{ m} = 0.25 \text{ m}$$

$$h = 3.5 \text{ m}$$