

But OE is a radius of (C) (given) ✓

Then $OE = \frac{1}{2}$ diameter ✓

$$OE = \frac{6}{2} = 3 \text{ cm} ✓$$

Thus, $BS = 6 \text{ cm}$ ✓

3) a. In Δ s OIF & SIB sharing same vertex I :

$OF \parallel BS$ given

S, I & F, A and O, I & B are collinear in this order (given)

Use Thales's property / statement: ————

Ratios:

$$\frac{IO}{IB} = \frac{IF}{IS} = \frac{OF}{BS} ✓$$

using ratios 1 & 3

$$\frac{IO}{IB} = \frac{OF}{BS}$$

$$\frac{IO}{IB} = \frac{\text{radius}}{6}$$

$$\frac{IO}{IB} = \frac{3}{6}$$

$$\frac{IO}{IB} = \frac{1}{2} ✓$$

b) $OI + IB = OB$ (collinear pts) ✓
 $OI + IB = 3 \rightarrow \text{radius}$ ———— (1) ✓

$$\frac{IO}{IB} = \frac{1}{2}$$

$IB = 2 \times IO$ ✓ Replace in eqn. (1)

$$IO + 2IO = 3$$

$$3IO = 3 ✓$$

$$IO = 1 \text{ cm} ✓$$

(10)