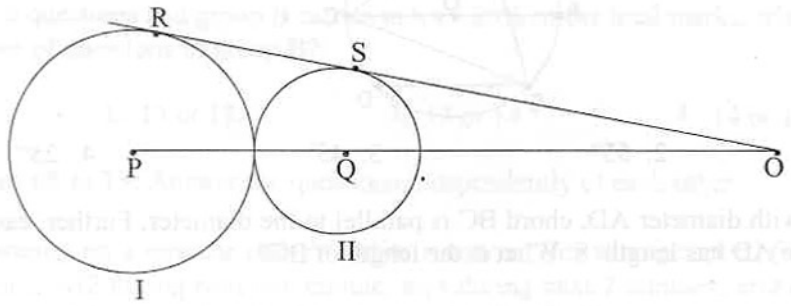
Directions for Questions 56 to 58: Answer the questions on the basis of the information given below.

In the adjoining figure, I and II are circles with centres P and Q respectively. The two circles touch each other and have a common tangent that touches them at points R and S respectively. This common tangent meets the line joining P and Q at O. The diameters of I and II are in the ratio 4:3. It is also known that the length of PO is 28 cm.



56. What is the ratio of the length of PQ to that of QO?

1. 1:4 2. 1:3 3. 3:8 4. 3:4

Sol. Δ PRO and Δ QSO are similar

$\frac{4x}{28} = \frac{3x}{OQ} \Rightarrow$ OQ = 21

$\therefore$ PQ = 7 $\Rightarrow \frac{PQ}{QO} = \frac{7}{21} = \frac{1}{3}$. **Ans.(2)**

57. What is the radius of the circle II?

1. 2 cm 2. 3 cm 3. 4 cm 4. 5 cm

Sol. 4x + 3x = PQ = 7

$\Rightarrow$ x = 1. So, the radius of circle II = 3 cm. **Ans.(2)**

58. The length of SO is

1. $8\sqrt{3}$ cm 2. $10\sqrt{3}$ cm 3. $12\sqrt{3}$ cm 4. $14\sqrt{3}$ cm

Sol. $3^2 + SO^2 = 21^2$

$\Rightarrow SO^2 = 21^2 - 3^2$

$\Rightarrow SO^2 = 432 \Rightarrow SO = 12\sqrt{3}$. **Ans.(3)**