

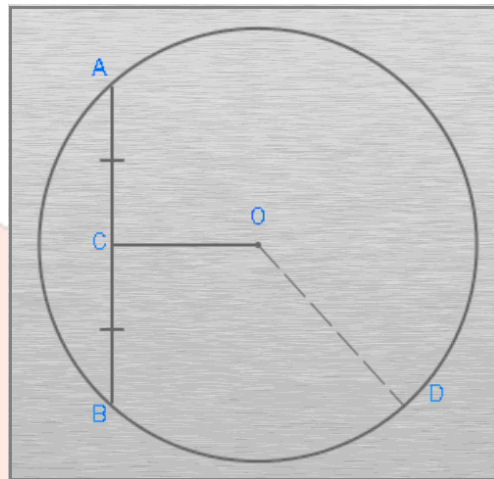


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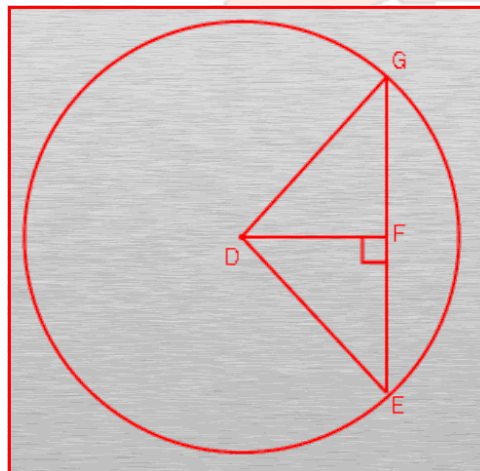
GRADE 11 Euclidian Geometry

11.7 Circles, chords and midpoints

1. Determine the length of AB if $OD = 35$ mm and $OC = 24$ mm.



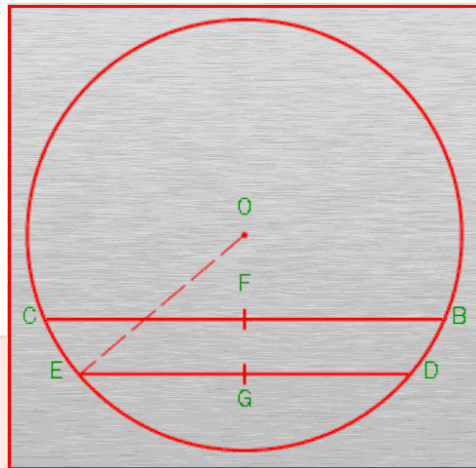
2. Determine the length of EF if $\hat{E}DG = 90^\circ$, $GD = 35$ mm and $DE = DG$.



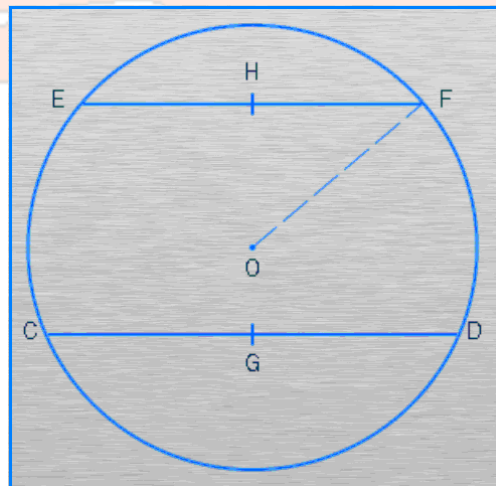


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3. Calculate the distance between BC and DE if $OG \perp ED$, $ED \parallel BC$, $BC = 64$ cm, $DE = 52$ cm and $OE = 88$ cm.



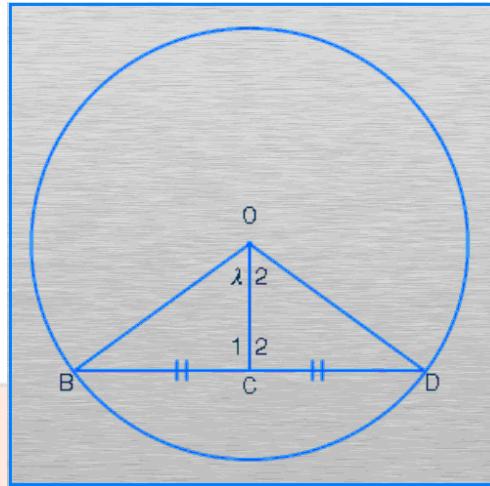
4. Calculate the distance between CD and EF if $OH \perp EF$, $OG \perp CD$, $CD = 75$ m, $EF = 66$ m and $OF = 100$ m.





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5. Calculate the size of p if $\lambda = 4p$ and $\hat{D} = 5p$.





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MEMO

Give answers rounded to two decimal places. [8.5.2; 8.5.3]

1.

$$OA = OD$$

radii

$$OA^2 = AC^2 + OC^2$$

Pythagoras

$$35^2 = AC^2 + 24^2$$

$$AC^2 = 1225 - 576$$

$$AC = 25.48 \text{ mm}$$

$$AB = 2 \times 25.48$$

Perp. Bisector of chord through the circ. centre

$$AB = 51.95 \text{ mm}$$

2.

$$DE = DG$$

radii

$$GE^2 = DG^2 + DE^2$$

Pythagoras

$$GE^2 = 35^2 + 35^2$$

$$GE = 49.50$$

$$\text{but } GF = EF$$

$DF \perp EG$

$$\therefore EF = 24.8 \text{ mm}$$

3.

$$OE^2 = OG^2 + EG^2$$

Pythagoras

$$88^2 = OG^2 + 26^2$$

$$OG = 84.0713 \text{ cm}$$

$$OC^2 = OF^2 + CF^2$$

Pythagoras

$$88^2 = OF^2 + 32^2$$

$$OF = 81.9756$$

$$FG = OG - OF$$

$$FG = 84.0713 - 81.9756$$

$$FG = 2.1 \text{ cm}$$

4.

$$OF^2 = OH^2 + HF^2$$

Pythagoras

$$100^2 = OH^2 + 33^2$$

$$OH = 94.3980 \text{ m}$$

$$OD^2 = OG^2 + GD^2$$

Pythagoras

$$100^2 = OG^2 + 37.5^2$$

$$OG = 92.70248 \text{ m}$$

$$\therefore HG = OH + OG$$

$$HG = 187.10 \text{ m}$$



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5. $\hat{B} = \hat{D} = 5p$ $BC = CD$
 $\hat{B} + \lambda = 90^\circ$ inter. \angle 's of Δ
 $9p = 90^\circ$
 $p = 10^\circ$

