

to find  $\angle PRA$

Sol  $\angle 2 + \angle 3 = 180^\circ$  (linear pair axiom)

$$135 + \angle 3 = 180$$

$$\Rightarrow \angle 3 = 180 - 135 = 45^\circ$$

$$\angle 1 = \angle 3 + \angle 4 \text{ (exterior angle prop of } \Delta)$$

$$110 = 45 + \angle 4$$

$$\Rightarrow \angle 4 = 110 - 45$$

$$\angle PRA = 65^\circ$$

$$\begin{aligned} \angle 1 &= \frac{1}{2} \angle YZ \\ &= \frac{1}{2} \times 54 \\ &= 27^\circ \end{aligned} \quad [\because YO \text{ bisects } \angle XYZ]$$

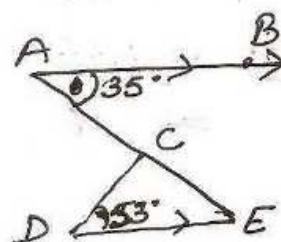
$$\begin{aligned} \angle 2 &= \frac{1}{2} \angle XZY \\ &= \frac{1}{2} \times 64 \\ &= 32^\circ \end{aligned} \quad [\because ZO \text{ bisects } \angle XZY]$$

In  $\Delta YOZ$   
 $\angle 1 + \angle 2 + \angle 3 = 180^\circ$  (angle sum prop of  $\Delta$ )

$$27 + 32 + \angle 3 = 180$$

$$\begin{aligned} \angle 3 &= 180 - 59 \\ &= 121^\circ \end{aligned}$$

(3)



to find  $\angle DCE$

Sol  $AB \parallel DE$   
 $\therefore \angle E = \angle A = 35^\circ$  (alt. int.  $\angle$ s)

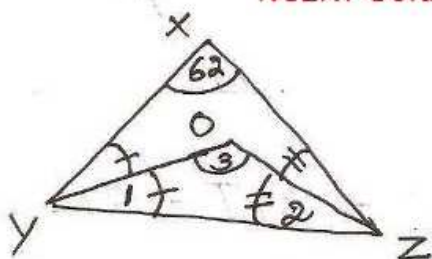
In  $\Delta DCE$   
 $\angle DCE + \angle D + \angle E = 180^\circ$  (angle sum prop of  $\Delta$ )

$$\angle DCE + 63 + 35 = 180$$

$$\begin{aligned} \Rightarrow \angle DCE &= 180 - 88 \\ &= 92^\circ \end{aligned}$$

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(2)



to find  $\angle OZY, \angle YOZ$

solution

In  $\Delta XYZ$

$$\angle X + \angle XYZ + \angle XZY = 180^\circ \text{ (angle sum prop. of } \Delta)$$

$$62 + 54 + \angle XZY = 180$$

$$\begin{aligned} \Rightarrow \angle XZY &= 180 - 62 - 54 \\ &= 64^\circ \end{aligned}$$

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