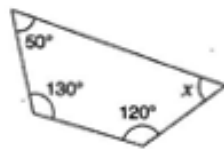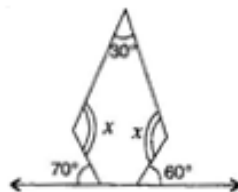**Q6.** Find the angle measures x in the following figures:
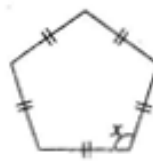

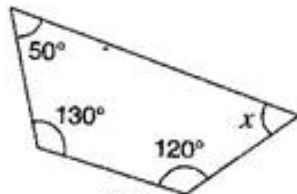
(a)

(b)

(c)

(d)

Ans: (a) Using angle sum property of a quadrilateral,

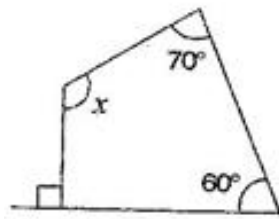(a)

$50° + 130° + 120° + x = 360°$

$\Rightarrow 300° + x = 360°$

$\Rightarrow x = 360° - 300°$

$\Rightarrow x = 60°$

(b) Using angle sum property of a quadrilateral,

(b)

$90° + 60° + 70° + x = 360°$

$\Rightarrow 220° + x = 360°$

$\Rightarrow x = 360° - 220°$

$\Rightarrow x = 140°$

(a) First base interior angle

$= 180° - 70° = 110°$

Second base interior angle

$= 180° - 60° = 120°$

There are 5 sides, $n = 5$
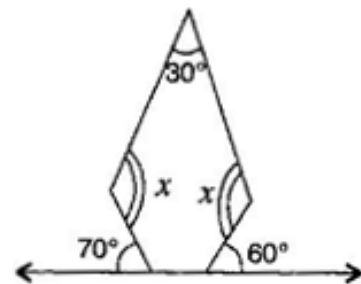
(c)

$\therefore$ Angle sum of a polygon $= (n - 2) \times 180°$

$= (5-2) \times 180° = 3 \times 180° = 540°$

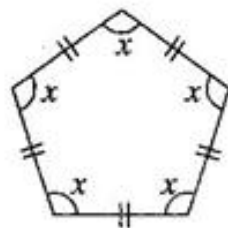$\therefore \ 30° + x + 110° + 120° + x = 540°$

$\Rightarrow \ 260° + 2x = 540°$

$\Rightarrow \ 2x = 540° - 260°$

$\Rightarrow \ 2x = 280°$

$\Rightarrow \ x = 140°$

(b) Angle sum of a polygon $= (n-2) \times 180°$

$= (5-2) \times 180° = 3 \times 180° = 540°$

(d)
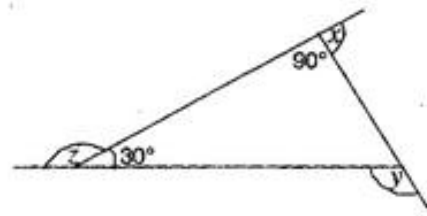
$\therefore \ x + x + x + x + x = 540°$
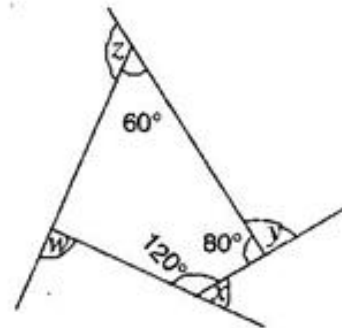
$$\Rightarrow 5x = 540°$$

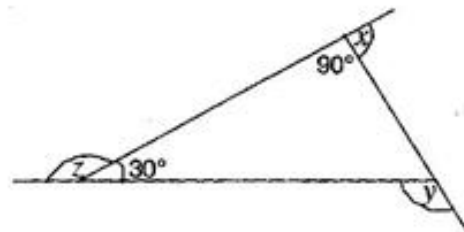$$\Rightarrow x = 108°$$

Hence each interior angle is $108°$.

Q7. (a) Find $x + y + z$

(b) Find $x + y + z + w$

Ans: (a) Since sum of linear pair angles is $180°$.

$$\therefore \quad 90° + x = 180°$$

$\Rightarrow x = 180° - 90° = 90°$

And $z + 30° = 180°$

$\Rightarrow z = 180° - 30° = 150°$

Also $y = 90° + 30° = 120°$

[Exterior angle property]

$\therefore x + y + x = 90° + 120° + 150° = 360°$

(b) Using angle sum property of a quadrilateral,
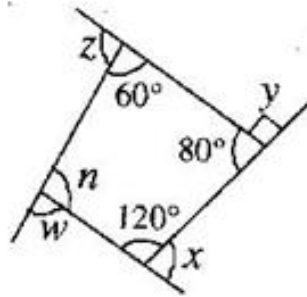
$60° + 80° + 120° + n = 360°$

$\Rightarrow 260° + n = 360°$

$\Rightarrow n = 360° - 260°$

$\Rightarrow n = 100°$

Since sum of linear pair angles is $180°$.

$\therefore w + 100 = 180°$ ....(i)

$x + 120° = 180°$ ....(ii)

$y + 80° = 180°$ ....(iii)

$z + 60° = 180°$ ....(iv)

Adding eq. (i), (ii), (iii) and (iv),

$\Rightarrow x + y + z + w + 100° + 120° + 80° + 60°$

$= 180° + 180° + 180° + 180°$

$\Rightarrow x + y + z + w + 360° = 720°$

$\Rightarrow x + y + z + w = 720° - 360°$

$\Rightarrow x + y + z + w = 360°$

********** END *********