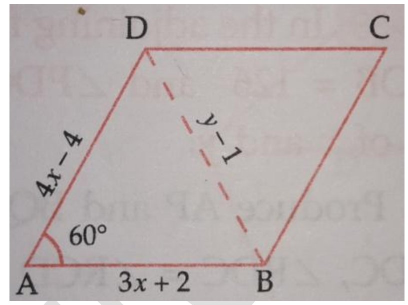
General instructions for Students: Whatever be the notes provided, everything must be copied in the Maths copy and then do the HOMEWORK in the same copy.

5 (c) In the figure, find the values of x and y.



Solution : ABCD is a rhombus

$\therefore \quad AD = AB \implies 4x - 4 = 3x + 2$

$\implies 4x - 3x = 2 + 4 \implies x = 6$ **Ans.**

$\because \quad AD = AB$

$\therefore \quad \angle ABD = \angle ADB$ [angles opp. equal sides are equal] ……… (i)

In ΔABD, $\angle A + \angle ABD + \angle ADB = 180°$ [Angle sum property of a triangle]

$\implies 60° + \angle ABD + \angle ABD = 180°$ [Using (i)]

$\implies 2\angle ABD = 180° - 60°$

$\implies \angle ABD = 60° = \angle ADB$

$\therefore$ ΔABD is an equilateral triangle. $\therefore \quad AB = BD = AD$

$\therefore \quad AB = BD \implies 3x + 2 = y - 1$

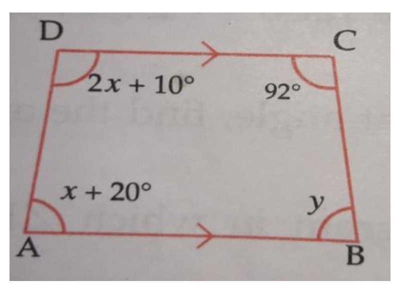
$\implies 3(6) + 2 = y - 1$ [$x = 6$]

$\implies 18 + 2 = y - 1$

$\implies 20 = y - 1$

$\implies y = 21$ **Ans.**

8 (a) In figure, ABCD is a trapezium. find the values of x and y.



Solution : $\angle A + \angle D = 180°$ [$AB \parallel DC$, sum of co – int. $\angle s = 180°$]

$\implies x + 20° + 2x + 10° = 180°$

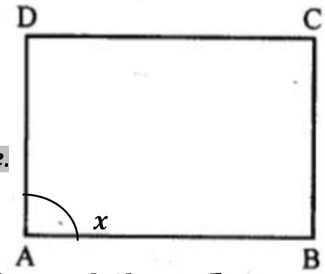
$\implies 3x + 30° = 180°$

$\implies 3x = 150°$

$\implies x = 50°$ **Ans.**

$\angle B + \angle C = 180°$ [sum of co – int. $\angle s = 180°$]

$\implies y + 92° = 180°$



$\Rightarrow \quad y = 180° - 92° = 88°$ ***Ans.***

9(ii) If the angle of a quadrilateral are equal, prove that it is a rectangle.

Solution: *Let the angles of a quadrilateral be x.*

According to the question, $x + x + x + x = 360°$ *[Angles sum prop. of a quadrilateral]*

$\Rightarrow \quad 4x = 360°$

$\Rightarrow \quad x = 90°$

So, all angles of a quadrilateral is 90°

Hence, it is a rectangle. ***Proved.***

9(iv) Prove that every diagonal of a rhombus bisects the angles at the vertices.

Solution: *ABCD is a rhombus, AC is a diagonal.*

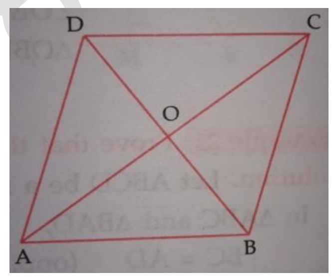
$AB = BC \quad \Rightarrow \angle BAC = \angle BCA$ *[angles opp. equal sides are equal]* …… (i)

AD ∥ BC and AC is a transversal

$\angle DCA = \angle BAC$ *[alt. int. ∠s]* …………….(ii)

From (i) and (ii), $\angle DCA = \angle BCA$

$\therefore$ *AC bisects ∠C*



Similarly, BD bisects ∠B as well as ∠D. ***Proved.***

HOMEWORK

EXERCISE – 13.1

QUESTION NUMBERS: 2, 4(a), (c), 5(b), 6, 7(b), 8(b), 9(iii) and 10

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