CH 5 GEOMETRY

ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (a) $a + 36° + 70° = 180°$ (sum of angles of triangle)

   $\Rightarrow a = 180° - 36° - 70° = 74°$

   $b = 36° + 70°$ (Ext. angle of triangle) $= 106°$

   $c = a - 50°$ (Ext. angle of triangle)

   $= 74° - 50° = 24°$.

2. (b) Since the sum of all the angle of a quadrilateral is $360°$

   We have $\angle ABC + \angle BQE + \angle DEF + \angle EPB$

   $= 360°$

   $\therefore \angle ABC + \angle DEF = 180°$

   $[\because BPE = EQB = 90°]$

3. (b) $m \angle AHG = 180 - 108 = 72^0$

   $\therefore \quad \angle AHG = \angle ABC$ .....(same angle with different names)

   $\therefore \Delta AHG - \Delta ABC$ .....(AA test for similarity)

   $\dfrac{AH}{AB} = \dfrac{AG}{AC}$; $\dfrac{6}{12} = \dfrac{9}{AC}$

   $\therefore AC = \dfrac{12 \times 9}{6} = 18$

   $\therefore HC = AC - AH = 18 - 6 = 12$

4. (b) In $\Delta ABC, \angle C = 180 - 90 - 30 = 60°$

   $\therefore \Delta DCE = \dfrac{60}{2} = 30°$

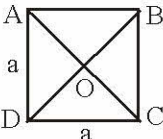   Again in $\Delta DEC, \Delta CED = 180 - 90 - 30 = 60°$

5. (c) In a right angled Δ, the length of the median is $\dfrac{1}{2}$ the length of the hypotenuse . Hence

   $BD = \dfrac{1}{2} AC = 3cm$.

6. (a) $\angle D = 180 - \angle B = 180 - 70 = 110°$

   $\therefore \angle ACD = 180 - \angle D - \angle CAD$

   $180 - 110 - 30 = 40°$

7. (b)

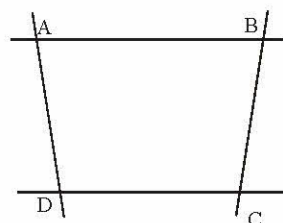
   ABCD is square $a^2 = 4 \Rightarrow a = 2$

   $ac = BD = 2\sqrt{2}$

   perimeters of four triangles

   $= AB + BC + CD + DA + 2(AC + BD)$

   $= 8 + 2(2\sqrt{2} + 2\sqrt{2}) = 8(1 + \sqrt{2})$

8. (d) The quadrilateral obtained will always be a trapeziam as it has two lines which are always parallel to each other.

9. (b) It is a rectangle.

   (In a cyclic parallelogram each angle is equal to $90°$. So, it is definitely either a square or a rectangle. Since the given cyclic parallelogram has unequal adjacent sides, it is a square.)

10. (a)