Question 11.
Find x in the following figure. (NCERT Exemplar)
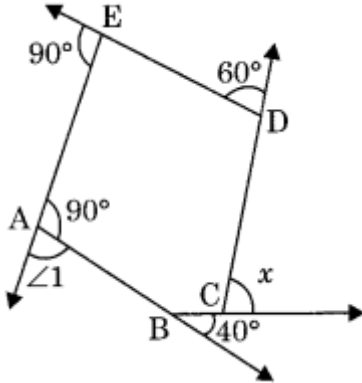
Solution:In the given figure ∠1 + 90° = 180° (linear pair)

∠1 = 90°

Now, sum of exterior angles of a polygon is 360°, therefore,

x + 60° + 90° + 90° + 40° = 360°

⇒ x + 280° = 360°

⇒ x = 80°

Understanding Quadrilaterals Class 8 Extra Questions Short Answer Type

Question 12.In the given parallelogram ABCD, find the value of x andy.
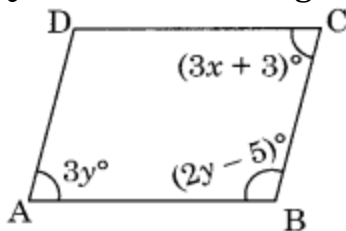
Solution:

∠A + ∠B = 180°

3y + 2y – 5 = 180°

⇒ 5y – 5 = 180°

⇒ 5y = 180 + 5°

⇒ 5y = 185°

⇒ y = 37°

Now ∠A = ∠C [Opposite angles of a parallelogram]

3y = 3x + 3

⇒ 3 × 37 = 3x + 3

⇒ 111 = 3x + 3

⇒ 111 – 3 = 3x

⇒ 108 = 3x

⇒ x = 36°

Hence, x = 36° and y – 37°.

Question 13. ABCD is a rhombus with ∠ABC = 126°, find the measure of ∠ACD.
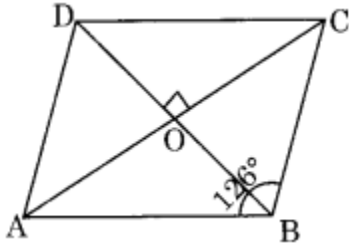
Solution:∠ABC = ∠ADC (Opposite angles of a rhombus)
∠ADC = 126°
∠ODC = 12 × ∠ADC (Diagonal of rhombus bisects the respective angles)
⇒ ∠ODC = 12 × 126° = 63°
⇒ ∠DOC = 90° (Diagonals of a rhombus bisect each other at 90°)
In ΔOCD,
∠OCD + ∠ODC + ∠DOC = 180° (Angle sum property)
⇒ ∠OCD + 63° + 90° = 180°
⇒ ∠OCD + 153° = 180°
⇒ ∠OCD = 180° – 153° = 27°
Hence ∠OCD or ∠ACD = 27°

Question 14. Find the values of x and y in the following parallelogram.
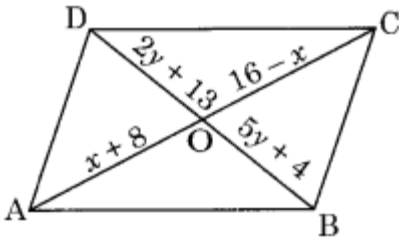
Solution:Since, the diagonals of a parallelogram bisect each other.
OA = OC
x + 8 = 16 – x
⇒ x + x = 16 – 8
⇒ 2x = 8
x = 4
Similarly, OB = OD
5y + 4 = 2y + 13
⇒ 3y = 9
⇒ y = 3
Hence, x = 4 and y = 3

Question 15.
Write true and false against each of the given statements.
(a) Diagonals of a rhombus are equal.
(b) Diagonals of rectangles are equal.
(c) Kite is a parallelogram.
(d) Sum of the interior angles of a triangle is 180°.
(e) A trapezium is a parallelogram.
(f) Sum of all the exterior angles of a polygon is 360°.
(g) Diagonals of a rectangle are perpendicular to each other.

(h) Triangle is possible with angles 60°, 80° and 100°.
(i) In a parallelogram, the opposite sides are equal.
Solution:
(a) False
(b) True
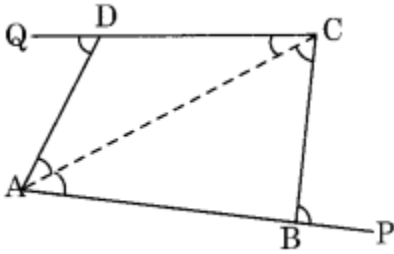(c) False
(d) True
(e) False
(f) True
(g) False
(h) False
(i) True
Question 16.The sides AB and CD of a quadrilateral ABCD are extended to points P and Q respectively. Is ∠ADQ + ∠CBP = ∠A + ∠C? Give reason.
(NCERT Exemplar)
Solution:Join AC, then
∠CBP = ∠BCA + ∠BAC and ∠ADQ = ∠ACD + ∠DAC (Exterior angles of triangles)

Therefore,
∠CBP + ∠ADQ = ∠BCA + ∠BAC + ∠ACD + ∠DAC
= (∠BCA + ∠ACD) + (∠BAC + ∠DAC)
= ∠C + ∠A
 Understanding Quadrilaterals Class 8 Extra Questions Higher Order Thinking Skills (HOTS)