Worksheet -8   Subject: - Mathematics   Class: - VII   Teacher: - Ms. Neeru

Name: _____ Class & Sec: _____ Roll No. _____ Date: 14.08.2020

Exercise 5.2

Question 1

State the property that is used in each of the following statements:

(i) If a∥b, then ∠1 = ∠5.

(ii) If ∠4 = ∠6, then a ∥ b.

(iii) If ∠4 + ∠5 = 180°, then a ∥ b.

Answer 1:

(i)   If a∥b, then ∠1 = ∠5.   [Corresponding angles]

   If two parallel lines are cut by a transversal, each pair of corresponding angles are equal in measure.

(ii)   If ∠4 = ∠6, then a ∥ b.   [Alternate interior angles]

   When a transversal cuts two lines such that pairs of alternate interior angles are equal, the lines have to be parallel.

(iii) If ∠4 + ∠5 = 180°, then a ∥ b.   [Co–interior Angles]

   When a transversal cuts two lines, such that pairs of interior angles on the same side of transversal are supplementary, the lines have to be parallel.

Question 2

In the adjoining figure, identify:

(i) The pairs of corresponding angles.

(ii) The pairs of alternate interior angles.

(iii) The pairs of interior angles on the same side of the transversal.

(iv) The vertically opposite angles.
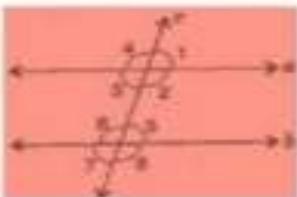
Answer 2:

(i)   The pairs of corresponding angles:

   ∠1, ∠5; ∠2, ∠6; ∠4, ∠8 and ∠3, ∠7

(ii)   The pairs of alternate interior angles are:

   ∠3, ∠5 and ∠2, ∠8

(iii) The pair of interior angles on the same side of the transversal:

   ∠3, ∠8 and ∠2, ∠5

(iv)   The vertically opposite angles are:

   ∠1, ∠3; ∠2, ∠4; ∠6, ∠8 and ∠5, ∠7

Question 3

In the adjoining figure, p ∥ q. Find the unknown angles.
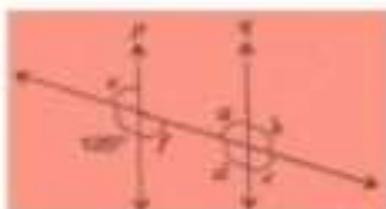
Answer 3:

Given, p∥q and cut by a transversal line.

	$125° + e = 180°$	[Linear pair]
	$e = 180° - 125° = 55°$	........(i)
Now	$e = f = 55°$	[Vertically opposite angles]
Also	$a = f = 55°$	[Alternate interior angles]
	$a + b = 180°$	[Linear pair]
⇒	$55° + b = 180°$	[From equation (i)]
⇒	$b = 180° - 55° = 125°$	
Now	$a = c = 55°$ and $b = d = 125°$	[Vertically opposite angles]
Thus,	$a = 55°, b = 125°, c = 55°, d = 125°, e = 55°$ and $f = 55°$.	

Question 4

Find the values of x in each of the following figures if l ∥ m
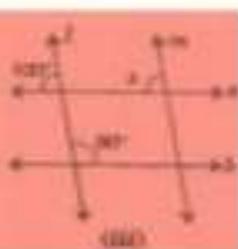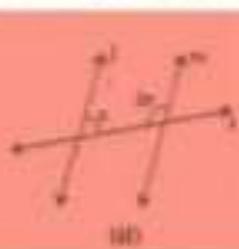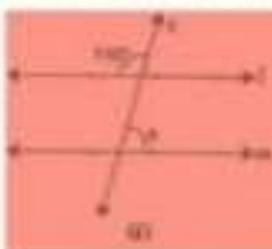
Answer 4:

(i) Given, l ∥ m and t is transversal line.

  ∴ Interior vertically opposite angle between lines l and t = 110°.

  ∴ $110° + x = 180°$ [Supplementary angles]

  ⇒ $x = 180° - 110° = 70°$

(ii) Given, l ∥ m and t is transversal line.

  $x + 2x = 180°$ [Interior opposite angles]

  ⇒ $3x = 180°$

  ⇒ $x = \dfrac{180°}{3} = 60°$

(iii) Given, l ∥ m and a ∥ b.

  $x = 100°$ [Corresponding angles]