



**Mathematics-9**

**Unit 9 – Review Exercise 9**

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**Q.1 Choose the Correct answer**

- (i) Distance between points (0, 0) and (1, 1) is **(K.B + U.B)**  
 (LHR 2017, GRW 2013, 16, SWL 2013, 15, FSD 2017, SGD 2016, 17, MTN 2013)  
 (a) 0 (b) 1  
 (c) 2 (d)  $\sqrt{2}$
- (ii) Distance between the points (1, 0) and (0, 1) is **(K.B + U.B)**  
 (LHR 2016, FSD 2013, SWL 2013, SGD 2013, BWP 2013, 14, MTN 2016, 17)  
 (a) 0 (b) 1  
 (c)  $\sqrt{2}$  (d) 2
- (iii) Midpoint of the points (2, 2) and (0, 0) is **(K.B + U.B)**  
 (a) (1, 1) (b) (1, 0)  
 (c) (0, 1) (d) (-1, -1)
- (iv) Midpoint of the points (2, -2) and (-2, 2) is **(K.B + U.B)**  
 (a) (2, 2) (b) (-2, -2)  
 (c) (0, 0) (d) (1, 1)
- (v) A triangle having all sides equal is called **(K.B + U.B)**  
 (LHR 2013, GRW 2014, SWL 2014, 15)  
 (a) Isosceles (b) Scalene  
 (c) Equilateral (d) None of these
- (vi) A triangle having all sides different is called **(K.B + U.B)**  
 (a) Isosceles (b) Scalene  
 (c) Equilateral (d) None of these

**ANSWER KEYS**

<b>i</b>	<b>ii</b>	<b>iii</b>	<b>iv</b>	<b>v</b>	<b>vi</b>
<b>d</b>	<b>c</b>	<b>a</b>	<b>c</b>	<b>c</b>	<b>b</b>

**Q.2 Answer the following which is true and which is false**

- (i) A line has two end points **(K.B + U.B)**  
 (False)
- (ii) A line segment has one end point **(K.B + U.B)**  
 (False)
- (iii) A triangle is formed by the three collinear points **(K.B + U.B)**  
 (False)

## Unit - 9

## Introduction to Coordinate Geometry

- (iv) Each side of triangle has two collinear vertices. (K.B + U.B)  
(True)
- (v) The end points of each side of a rectangle are Collinear (K.B + U.B)  
(True)
- (vi) All the points that lie on the x-axis are Collinear (K.B + U.B)  
(True)
- (vii) Origin is the only point Collinear with the points of both axis separately  
(True)

**Q.3** Find the distance between the following pairs of points

**Solution:**

(i) (6,3)(3,-3)

$$A(6,3), B(3,-3)$$

$$d = \sqrt{|x_2 - x_1|^2 + |y_2 - y_1|^2}$$

$$|A B| = \sqrt{|3-6|^2 + |-3-3|^2}$$

$$|A B| = \sqrt{(-3)^2 + (-6)^2}$$

$$|A B| = \sqrt{9+36}$$

$$|A B| = \sqrt{45}$$

$$|A B| = \sqrt{9 \times 5}$$

$$|A B| = 3\sqrt{5}$$

(ii) (7,5),(1,-1)

$$A(7,5), B(1,-1)$$

$$d = \sqrt{|x_2 - x_1|^2 + |y_2 - y_1|^2}$$

$$|A B| = \sqrt{|7-1|^2 + |5-(-1)|^2}$$

$$|A B| = \sqrt{(6)^2 + (5+1)^2}$$

$$|A B| = \sqrt{36 + (6)^2} = \sqrt{36+36}$$

$$|A B| = \sqrt{72} = \sqrt{36 \times 2}$$

$$|A B| = 6\sqrt{2}$$

(iii) (0,0),(-4,-3)

$$A(0,0), B(-4,-3)$$

$$d = \sqrt{|x_2 - x_1|^2 + |y_2 - y_1|^2}$$

$$|A B| = \sqrt{|0 - (-4)|^2 + |0 - (-3)|^2}$$

$$|A B| = \sqrt{(4)^2 + (3)^2}$$

$$|A B| = \sqrt{16+9}$$

$$|A B| = \sqrt{25}$$

$$|A B| = 5$$

**Q.4** Find the midpoint between following pairs of points

**Solution:**

(i) (6,6),(4,-2) (SWL 2017, SGD 2017)

$$M(x, y) = M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$M(x, y) = M\left(\frac{6+4}{2}, \frac{6-2}{2}\right)$$

$$M(x, y) = M\left(\frac{10}{2}, \frac{4}{2}\right)$$

$$M(x, y) = M(5, 2)$$

(ii) (-5,-7),(-7,-5) (BWP 2014)

$$M(x, y) = M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$M(x, y) = M\left(\frac{-5-7}{2}, \frac{-7-5}{2}\right)$$

$$M(x, y) = M\left(\frac{-12}{2}, \frac{-12}{2}\right)$$

$$M(x, y) = M(-6, -6)$$

(iii) (8,0),(0,-12) (LHR 2016, SGD 2016)

## Unit - 9

## Introduction to Coordinate Geometry

$$M(x, y) = M\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$M(x, y) = M\left(\frac{8 + 0}{2}, \frac{0 - 12}{2}\right)$$

$$M(x, y) = M\left(\frac{8}{2}, \frac{-12}{2}\right)$$

$$M(x, y) = M(4, -6)$$

**Q.5 Define the following**

**Solution:**

(i) **Co-ordinate Geometry** (K.B)

Co-ordinate geometry is the study of geometrical shapes in the Cartesian plane (or coordinate plane)

(ii) **Collinear Points** (K.B)

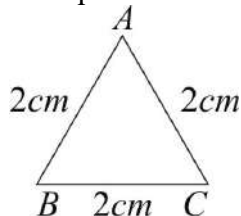
Two or more than two points which lie on the same straight line are called collinear points with respect to that line.

(iii) **Non- Collinear Points** (K.B)

The points which do not lie on the same straight line are called non-collinear points.

(iv) **Equilateral Triangle** (K.B)

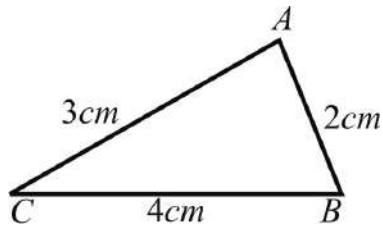
If the lengths of all three sides of a triangle are same then the triangle is called an equilateral triangle.



$\Delta ABC$  is an equilateral triangle.

(v) **Scalene Triangle** (K.B)

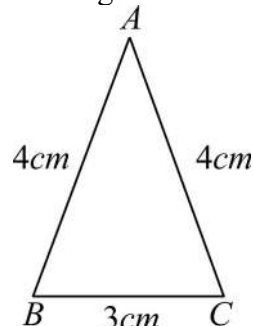
A triangle is called a scalene triangle if measures of all sides are different.



$\Delta ABC$  is a Scalene triangle.

(vi) **Isosceles Triangle** (K.B)

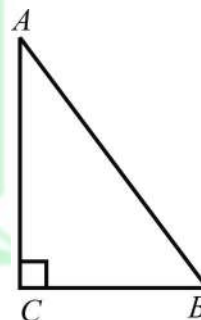
An isosceles triangle is a triangle which has two of its sides with equal length while the third side has different length.



$\Delta ABC$  is an isosceles triangle

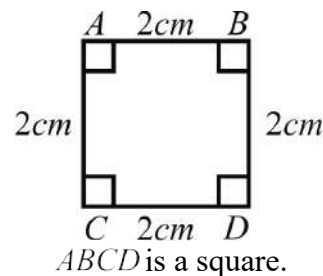
(vii) **Right Triangle** (K.B)

A triangle in which one of the angles has measure equal to  $90^\circ$  is called a right triangle.



$\Delta ABC$  is a right angled triangle.

(viii) A Square is a closed figure formed by four non- collinear points such that lengths of all sides are equal and measure of each angle is  $90^\circ$ .



$ABCD$  is a square.