Success Key Worksheet

Std: Class 9 (Eng. & Semi) **Ch.1. Basic con. in Geometry** **Time: 1 Hr.**

(Worksheet 1)

Date: **Mathematics-2** **Marks: 15**

Q.1) Choose the correct alternative answer for each of the following questions: **3**

1. The point which divides given line segment in two congruent parts is called _____ of that segment.
(a) co-ordinate (b) mid-point (c) origin (d) equation

2. The converse statement for "If a number is prime then it is odd" is _____.
(a) If a number is odd, then, it is prime.
(b) Every prime number is odd.
(c) Only odd numbers are prime.
(d) A number is odd if it is prime.

3. If AB = 7 cm and AP = 2.5 cm, A-P-B then PB =?
(a) 5.5 cm (b) 4.4 cm (c) 4.5 cm (d) 9.5 cm

Q.2) Solve the following sub questions: **2**

1. If the co-ordinate of A is x and that of B is y, find d (A, B): x = 4, y = - 8

2. If the co-ordinate of A is x and that of B is y, find d (A, B): x = -3, y = 7

Q.3) Complete the following activities and rewrite it. (Any 2) **4**

1. From the information given below, find which of the point is between the other two. If the points are not collinear, state so: d (A, B) = 16, d(C, A) = 9, d (B, C) = 7.

∴ d(A, B) = 16 (i)
d(C, A) + d(B, C) = 9 + 7
∴ d(C, A) + d(B, C) = ☐ (ii)
∴ ☐ = d(C, A) + d(B, C) [From (i) and (ii)]
∴ Points A, B and C are ☐ points.
∴ Relation of ☐ exists.
A - C - B.

2. On a number line, co-ordinates of P, Q, R are 3, - 5 and 6 respectively. State with reason whether the following statements are true or false: d (R, P) + d (P, Q) = d (R, Q).

d(R, P) + d(P, Q) = d(☐)
d(R, P) + d(P, Q) = 3 + 8 = ☐ units ....(i)
d(R, Q) = 11 units ....(ii)
∴ d(R,P) + d(RQ) = d(☐) [From (i) and (ii)]
d(R, P) + d(P, Q) = d(R, Q) is a ☐ statement.

3. On a number line, co-ordinates of P, Q, R are 3, - 5 and 6 respectively. State with reason whether the following statements are true or false: d (P, R) + d (R, Q) = d (P, Q)

(P, R) + d(R, Q) = d(☐)
d(P, R) + d(R, Q) = 3 + ☐ = 14 units ....(i)
d(P, Q) = ☐ units ....(ii)
∴ d(P, R) + d(R, Q) ≠ d(P, Q) [From (i) and (ii)]
d(P, R) + d (R, Q) = d(P, Q) is ☐ statement.

Q.4) Solve the following sub questions: (Any 2) **6**

1. U, V and A are three cities on a straight road. The distance between U and A is 215 km, between V and A is 140 km and between U and A is 75 km. Which of them is between the other two?

2. Sketch proper figure and write the answers of the following questions: If X - Y - Z and l(XZ) = $3\sqrt{7}$, l(XY) = $\sqrt{7}$, then l(YZ) = ?

3. Sketch proper figure and write the answers of the following questions: If R - S -T and l(ST) = 3.7, l(RS) = 2.5, then l(RT) = ?

Success Key Worksheet

Std: Class 9 (Eng.& Semi) | **Ch.1. Basic con. in Geometry** | **Time: 1 Min**

Worksheet 1 (Answer Key)

Date: | **Mathematics-2** | **Max Marks: 15**

Q.1) Choose the correct alternative answer for each of the following questions: **3**

1) Ans. (b) mid-point

2) Ans. (a) If a number is odd, then, it is prime
Converse statement includes the opposite statement.
If a number is odd then it is prime.

3) Ans. (c) 4.5 cm

Q.2) Solve the following sub questions: **2**

1) Ans. x = 4, y = -8 as 4 > -8
∴ d (A, B) = 4 - (-8) = 4 + 8 = 12 units

2) Ans. x = -3, y = 7 as = 7 > -3
∴ d (A, B) = 7 - (-3) = 7 + 3 = 10 units

Q.3) Complete the following activities and rewrite it. (Any 2) **4**

1) Ans. ∴ d(A, B) = 16 (i)
d(C, A) + d(B, C) = 9 + 7
∴ d(C, A) + d(B, C) = 16 (ii)
∴ d(A, B) = d(C, A) + d(B, C) [From (i) and (ii)]
∴ Points A, B and C are collinear points.
∴ Relation of betweenness exists.
A - C - B.

2) Ans. d(R, P) + d(P, Q) = d(R, Q)
d(R, P) + d(P, Q) = 3 + 8 = 11 units ....(i)
d(R, Q) = 11 units ....(ii)
∴ d(R,P) + d(RQ) = d(R,Q) [From (i) and (ii)]
d(R, P) + d(P, Q) = d(R, Q) is a true statement.

3) Ans. (P, R) + d(R, Q) = d(P, Q)
d(P, R) + d(R, Q) = 3 + 11 = 14 units ....(i)
d(P, Q) = 8 units ....(ii)
∴ d(P, R) + d(R, Q) ≠ d(P, Q [From (i) and (ii)]
d(P, R) + d{R, Q) = d(P, Q) is false statement.

Q.4) Solve the following sub questions: (Any 2) **6**

1) Ans. $d(U,A) = 215$; $d(V,A) = 140$; $d(U,V) = 75$

$d(U,V) + d(V,A) = 75 + 140 = 215$; $d(U,A) = 215$

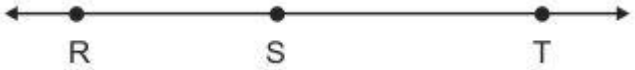
$\therefore d(U,A) = d(U,V) + d(V,A)$

∴ The city V is between the cities U and A.

2) Ans.

X - Y – Z i.e. X, Y and Z are collinear points (Given)
l(XZ) = l(XY) + l(YZ)
∴ $3\sqrt{7} - \sqrt{7} + l(YZ)$
∴ $3\sqrt{7} - \sqrt{7} = l(YZ)$
∴ $l(YZ) = 2\sqrt{7}$ units

3) Ans.



R - S – T i.e. R, S and T are collinear points (Given)
l(RT) = l(RS) + l(ST)
∴ l(RT) = 2.5 + 3.7
∴ l(RT) = 6.2 units

Success Key Worksheet

Std: Class 9 (Eng.& Semi) | **Ch.1. Basic con. in Geometry** | **Time: 1 Hr.**

Worksheet 2

Date: | **Mathematics-2** | **Marks: 15**

Q.1) Choose the correct alternative answer for each of the following questions: **3**

1. Which of the following needs a proof?
(a) Axiom (b) Postulate (c) Theorem (d) Definition

2. How many lines can pass through a single point?
(a) Infinite (b) Unique (c) Two (d) Three

3. Which figure is formed by three non – collinear points?
(a) Line segment (b) square (c) Triangle (d) Rectangle

Q.2) Solve the following sub questions: **2**

1. If the co-ordinate of A is x and that of B is y, find d (A, B): x = -4, y = -5

2. If the co-ordinate of A is x and that of B is y, find d (A, B): x = -3, y = -6

Q.3) Complete the following activities and rewrite it. (Any 2) **4**

1. On a number line, co-ordinates of P, Q, R are 3, - 5 and 6 respectively. State with reason whether the following statements are true or false: d (P, Q) + d (Q, R) = d (V, R)

d(P, Q) + d(Q, R) = d(P, R)
d(P, Q) + d(Q, R) = 8 + [ ] = [ ] units ....(i)
d(P, R) = 3 units ....(ii)
∴ d(P, Q) + d(Q, R) [ ] d(P, R)
[From (i) and (ii)]
∴ d(P, Q) + d(Q, R) = d(P, R) is a [ ] statement.

2. On a number line, co-ordinates of P, Q, R are 3, - 5 and 6 respectively. State with reason whether the following statements are true or false: d (P, Q) – d (P, R) = d (Q, R)

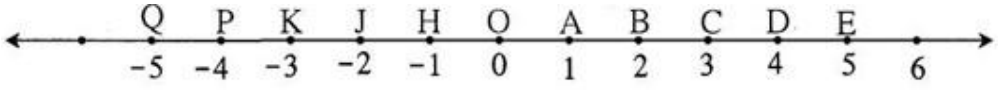
d(P,Q)-d([ ]) = d(Q,R)
d(P, Q) - d([ ]) = 8 - 3 = 5 units ....(i)
d(Q, R) = 11 units ....(ii)
∴ d(P,Q)-d(P,R) [ ] d(Q,R)[From (i) and (ii)]
d(P, Q) - d(P, R) = d(Q, R) is a [ ] statement.

3. Answer the following questions: If A - B - C and d (A,C) = 17, d(B,C) = 6.5 then d (A,B) = ?

A - B - C (Given)
∴ d(A, C) = d(A, B) + d([ ])
∴ 17 = d(A, B) + [ ]
∴ 17 - [ ] = d(A, B)
∴ d(A, B) = [ ] units

Q.4) Solve the following sub questions: (Any 1) **2**

1. Find the distances with the help of the number line given below: d (B,E)



2. Which figure is formed by three non-collinear points?

Q.5) Solve the following sub questions: (Any 1) **4**

1. On a number line, points A, B and C are such that d (A,B) = 5, d (B,C) = 11 and d (A,C) = 6. Which of the points is between the other two?

2. The co-ordinates of the points on a number line are given below. Determine whether the pair of segments are congruent or not.

Points	A	B	C	D	E
Co-ordinate	-3	5	2	-7	9

(i) seg DE and seg AB
(ii) seg BC and seg AD
(iii) seg BE and seg AD

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Worksheet 2 (Answer Key)

Date: | **Mathematics-2** | **Max Marks: 15**

Q.1) Choose the correct alternative answer for each of the following questions: **3**

1) Ans. (c) Theorem

2) Ans. (a) Infinite

3) Ans. (c) Triangle

As square and rectangle are formed by 4 vertices whereas line segment needs only two point to extend in opposite direction.

Therefore, three non – collinear points will form a triangle shaped plane figure.

Q.2) Solve the following sub questions: **2**

1) Ans. x = -4, y = -5 as - 4 > -5

∴ d (A, B) = -4 - (-5) = -4 + 5 = 1 units

2) Ans. x = -3, y = -6 as - 3 > -6

∴ d (A, B) = -3 - (-6) = -3 + 6 = 3 units

Q.3) Complete the following activities and rewrite it. (Any 2) **4**

1) Ans. d(P, Q) + d(Q, R) = d(P, R)

d(P, Q) + d(Q, R) = 8 + 11 = 19 units ....(i)

d(P, R) = 3 units ....(ii)

∴ d(P, Q) + d(Q, R) ≠ d(P, R)

[From (i) and (ii)]

∴ d(P, Q) + d(Q, R) = d(P, R) is a false statement.

2) Ans. d(P,Q)-d(P,R) = d(Q,R)

d(P, Q) - d(P, R) = 8 - 3 = 5 units ....(i)

d(Q, R) = 11 units ....(ii)

∴ d(P,Q)-d(P,R) ≠ d(Q,R)[From (i) and (ii)]

d(P, Q) - d(P, R) = d(Q, R) is a false statement.

3) Ans. A - B - C (Given)

∴ d(A, C) = d(A, B) + d(B, C)

∴ 17 = d(A, B) + 6.5

∴ 17 - 6.5 = d(A, B)

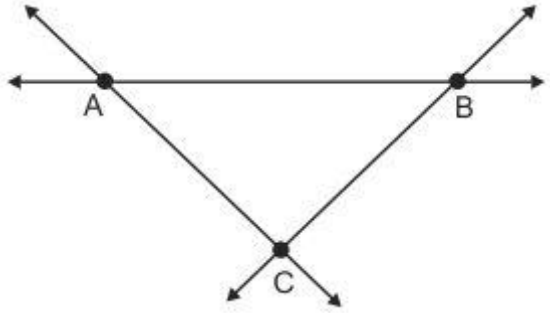
∴ d(A, B) = 10.5 units

Q.4) Solve the following sub questions: (Any 1) **2**

1) Ans. The co-ordinate of point B is 2 and the co-ordinate of point E as, 5 > 2

∴ d (B, E) = 5 - 2 = 3 units

2) Ans.



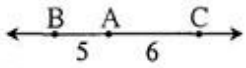
∴ By joining three non-collinear points, a triangle is formed.

Q.5) Solve the following sub questions: (Any 1) **4**

1) Ans. Which of the points A, B and C is between the other two, can be decided as follows.

$d(B,C) = 11 \ldots .$ (I)

$d(A,B) + d(A,C) = 5+6 = 11 \ldots .$ (II)



∴ $d(B, C) = d(A, B) + d(A, C) \ldots .$ [from (I) and (II)]

Point A is between point B and point C.

2) Ans. (i) The co-ordinate of point D is - 7 and
the co-ordinate of point E is 9
9 > -7
d(D, E)
= Greater co-ordinate - Smaller co-ordinate
= 9-(-7)
= 9 + 7
∴ d(D, E) = 16
∴ l(DE) = 16 units ....(i)
The co-ordinate of point A is - 3.
The co-ordinate of point B is 5.
5 > -3
d(A, B)
= Greater co-ordinate - Smaller co-ordinate
= 5 - (-3)
= 5 + 3
∴ d(A, B) = 8 units
∴ l(AB) = 8 units ....(ii)
∴ l(DE) ≠ l(AB) [From (i) and (ii)]
∴ seg DE is not congruent to seg AB

(ii) The co-ordinate of point B is 5.
The co-ordinate of point C is 2.
5 > 2
d(B, C)
= Greater co-ordinate - Smaller co-ordinate
= 5 - 2
∴ d(B, C) = 3 units
∴ l(BC) = 3units ....(i)

The co-ordinate of point A is - 3.
The co-ordinate of point D is - 7.
-3 > -7
d(A, D)
= Greater co-ordinate - Smaller co-ordinate
= -3 - (-7)
= -3 + 7
= 4
∴ d(A, D) = 4 units
∴ l(AD) = 4 units ....(ii)
∴ l(BC) ≠ l(AD) [From (i) and (ii)]
∴ seg BC is not congruent to seg AD.

(iii) The co-ordinate of point B is 5.
The co-ordinate of point E is 9.
9 > 5
d(B, E)
= Greater co-ordinate - Smaller co-ordinate
= 9 - 5
= 4
∴ d(B, E) = 4 units
∴ l(BE) = 4 units ....(i)
The co-ordinate of point A is - 3.
The co-ordinate of point D is - 7.
-3 > -7
d(A, D)
= Greater co-ordinate - Smaller co-ordinate
= -3 - (-7)
= -3 + 7
= 4
∴ d(A, D) = 4 units
∴ l(AD) = 4 units ....(ii)
∴ l(BE) = l(AD) [From (i) and (ii)]
∴ seg BE = seg AD