Self-Assessment Model Paper-2 (2024-25)

IX CLASS-MATHEMATICS-SOLUTIONS

1. **The distance of a point from the y - axis is called its x-coordinate, or abscissa, and the distance of the point from the x-axis is called its y-coordinate, or ordinate**

2. **The number of solutions of the equation y = 4x-7 is** [D]

(A) No solution (B) a unique solution (C) only two solutions (D) infinitely many solutions

3. **Find the value of k, if x = 2, y = 1 is a solution of the equation 2x + 3y = k.**

Sol: Given equation: $2x + 3y = k$

If $x = 2, y = 1$ is a solution of the given equation then

$2 \times 2 + 3 \times 1 = k$

$4 + 3 = k$

$k = 7$

4. **Two distinct lines can not have more than one point in common** (True/False)

5. **Write each of the following equations in the form ax + by + c = 0 and indicate the values of a, b and c in each case:**

(i) 4y = 3x + 2.39

Sol: $4y = 3x + 2.39$

$3x - 4y + 2.39 = 0$

$a = 3, b = -4, c = 2.39$

(ii) x-7 = √3 y

Sol: $x - 7 = \sqrt{3}y$

$x - \sqrt{3}y - 7 = 0$

$a = 1, b = -\sqrt{3}, c = -7$

6. **Write any of the four postulates of Euclid.**

Sol:

(i) A straight line may be drawn from any one point to any other point
(ii) A terminated line can be produced indefinitely.
(iii) A circle can be drawn with any centre and any radius.
(iv) All right angles are equal to one another.

7. **Find four different solutions of the equation x + 2y = 6.**

Sol: Given equation $x + 2y = 6$.

(i) $Let\ x = 0 \Rightarrow 0 + 2y = 6$

$\Rightarrow 2y = 6$

$\Rightarrow y = \frac{6}{2} = 3$

$(0,3)$ *is a solution.*

(ii) $Let\ x = 2 \Rightarrow 2 + 2y = 6$

$\Rightarrow 2y = 6 - 2$

$\Rightarrow 2y = 4$

$\Rightarrow y = \frac{4}{2} = 2$

$(2,2)$ *is a solution*

(iii) $Let\ x = 4 \Rightarrow 4 + 2y = 6$

$\Rightarrow 2y = 6 - 4$

$\Rightarrow 2y = 2$

$\Rightarrow y = \frac{2}{2} = 1$

$(4,1)$ $is\ a\ solution.$

(vi) $Let\ x = 6 \Rightarrow 6 + 2y = 6$

$\Rightarrow 2y = 6 - 6$

$\Rightarrow 2y = 0$

$\Rightarrow y = \frac{0}{2} = 0$

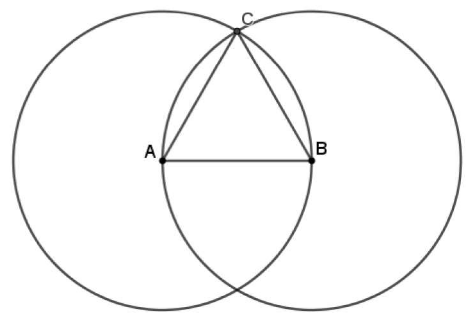
$(6,0)$ $is\ a\ solution$

Hence, four different solutions for equation are (0,3); (2,2); (4,1); (6,0)

8. **a) Prove that an equilateral triangle can be constructed on any given line segment.**

Sol: 1. Using Euclid's Postulate 3, you can draw a circle with point A as the centre and AB as the radius.

2. Draw another circle with point B as the centre and BA as the radius.



3. The two circles meet at a point, say C. Now, draw the line segments AC and BC to form ΔABC.

Proof: AB = AC(radii of the same circle)→(1)

AB = BC (Radii of the same circle)→(2)

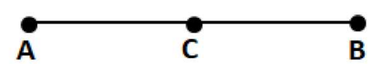
Euclid's axiom that things which are equal to the same thing are equal to one another,

From (1) and (2) : AB = BC = AC

So, Δ ABC is an equilateral triangle .(Or)

b) If A point C lies between two points A and B such that AC = BC, then prove that AC = $\frac{1}{2}$AB. Explain by drawing the figure.

Sol: AC = BC (Given)



AC + AC = BC + AC(Equals are added to equals)

2AC = AB (BC + AC coincides with AB)

AC = $\frac{1}{2}$AB

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