

EXERCISE 4.1

Write the correct answer in each of the following:

1. The linear equation $2x - 5y = 7$ has

- A. A unique solution
- B. Two solutions
- C. Infinitely many solutions
- D. No solution

Solution:

C. Infinitely many solutions

Explanation:

Expressing y in terms of x in the equation $2x - 5y = 7$, we get,

$$2x - 5y = 7$$

$$-5y = 7 - 2x$$

$$y = (7 - 2x)/-5$$

Hence, we can conclude that the value of y will be different for different values of x .

Hence, option C is the correct answer.

2. The equation $2x + 5y = 7$ has a unique solution, if x, y are:

- A. Natural numbers
- B. Positive real numbers
- C. Real numbers
- D. Rational numbers

Solution:

A. Natural numbers

Explanation:

Consider, $2x + 5y = 7$

x	1
y	1

A. $(1, 1)$ is a solution of $2x + 5y = 7$

B. If positive real numbers are chosen, $2x + 5y = 7$ will have many solutions.

C. If real numbers are chosen, $2x + 5y = 7$ will have infinite solutions.

D. If rational numbers are chosen, $2x + 5y = 7$ will have many solutions.

Hence, option A is the correct answer.

3. If $(2, 0)$ is a solution of the linear equation $2x + 3y = k$, then the value of k is

- A. 4
- B. 6
- C. 5
- D. 2

Solution:

A. 4

Explanation:

We know that,

$$(2, 0) = (x, y)$$

Substituting values of x and y in the above equation, we get

$$2 \times 2 + 3 \times 0 = k$$

$$k = 4$$

Hence, option A is the correct answer.

4. Any solution of the linear equation $2x + 0y + 9 = 0$ in two variables is of the form

A. $(-9/2, m)$

B. $(n, -9/2)$

C. $(0, -9/2)$

D. $(-9, 0)$

Solution:

A. $(-9/2, m)$

Explanation:

Solving the above equation we get,

$$2x = -9$$

$$x = -9/2$$

As the coefficient of y is 0, therefore, y can take any value and will not affect our answer.

A. $x = -9/2$

$y =$ any value

B. $x = n$

C. $x = 0$

D. $x = -9$

Hence, option A is the correct answer.

5. The graph of the linear equation $2x + 3y = 6$ cuts the y – axis at the point

A. $(2, 0)$

B. $(0, 3)$

C. $(3, 0)$

D. $(0, 2)$

Solution:

D. $(0, 2)$

Let $2x + 3y = 6$ cut the y -axis at P. therefore at P x -coordinate = 0.

Substituting $x = 0$, we get

$$2(0) + 3y = 6$$

$$3y = 6$$

$$y = 2$$

Hence the coordinates are $(0, 2)$.

A. $(2, 0)$ is wrong because it has $x = 2$

B. $(0, 3)$ is wrong because it has $y = 3$

C. $(3, 0)$ is wrong because it has $x = 3$

D. $(0, 2)$ is right because it has $x = 0$ and $y = 2$ which is equal to the coordinates $(0,2)$

Hence, option D is the correct answer.

6. The equation $x = 7$, in two variables, can be written as

A. $1. x + 1. y = 7$

B. $1. x + 0. y = 7$

C. $0. x + 1. y = 7$

D. $0. x + 0. y = 7$

Solution:

B. $1. x + 0. y = 7$

A. Simplifying the equation we get $x + y = 7$

B. Simplifying the equation we get $x + 0y = 7$ which is equal to $x = 7$

C. Simplifying the equation we get $y = 7$

D. simplifying the equation we get $0x + 0y = 7$ which is not possible.

Hence, option (B) is the correct answer.

7. Any point on the x – axis is of the form

A. (x, y)

B. $(0, y)$

C. $(x, 0)$

D. (x, x)

Solution:

C. $(x, 0)$

Any point on the x-axis has its ordinate 0.

So, any point on the x-axis is of the form $(x, 0)$.

Hence, option (C) is the correct answer.

8. Any point on the line $y = x$ is of the form

A. (a, a)

B. $(0, a)$

C. $(a, 0)$

D. $(a, -a)$

Solution:

A. (a, a)

Any point on the line $y = x$ will have x and y coordinate same.

So, any point on the line $y = x$ is of the form (a, a) .

Hence, option (A) is the correct answer.

9. The equation of x – axis is of the form

A. $x = 0$

B. $y = 0$

C. $x + y = 0$

D. $x = y$

Solution:

B. $y = 0$

The equation of x-axis is $y = 0$, since, x-axis is a parallel to itself at a distance 0 from it.

Hence, option (B) is the correct answer.