Graded quiz on Cartesian Plane and Types of Function

Quiz, 13 questions

13/13 points (100%)

✔ Congratulations! You passed!

Next Item

✔ 1 / 1 points

1.
Which of the following points in the Cartesian Plane have positive x-coordinate and negative y-coordinate?

- ○ $(7, -1)$

Correct
The x-coordinate, 7, is positive, and the y-coordinate, -1, is negative.

- ○ $(-4, 5)$
- ○ $(5, 7)$
- ○ $(0, 0)$

✔ 1 / 1 points

2.
Which of the following points is in the first quadrant of the Cartesian Plane?

- ○ $(-4, -7)$
- ○ $(-5, 1)$
- ○ $(7, 11)$

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Correct
The first quadrant is defined to be all points in the Cartesian plane whose coordinates are both positive.

- ○ $(5, -1)$

✔ 1 / 1 points

3.
Let A, B, C, D be points in the Cartesian Plane, and let the set $S = \{B, C, D\}$

Suppose that the distances from A to B, C, D are $5.3, 2.1,$ and 11.75, respectively.

Which of the following points is the nearest neighbor to the point A in the set S?

- ○ B
- ○ D
- ◉ C

Correct
The distance from A to C is 2.1 and that is smaller than the distance from A to any other element of S.

- ○ A

✔ 1 / 1 points

4.
Find the distance between the points $A = (2, 2)$ and $B = (-1, -2)$.

- ○ -25

5

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Correct

Recall that the distance between points (a, b) and (c, d) is $\sqrt{(c-a)^2 + (d-b)^2}$

In this case we have:

$$\sqrt{(-1-2)^2 + (-2-2)^2} = \sqrt{(-3)^2 + (-4)^2} = \sqrt{25} = 5$$

- 25
- 1

✔ 1 / 1 points

5.

Find the slope of the line segment between the points $A = (0, 1)$ and $B = (1, 0)$.

- -1

Correct

The slope of this line segment is $\frac{0-1}{1-0} = -1$

- 1
- $\sqrt{2}$
- 0

✔ 1 / 1 points

6.

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Find the point-slope form of the equation of the line with slope -2 that goes through the point $(5,4)$.

- $(5,4)$
- $y-5=-2(x-4)$
- $y-4=2(x-5)$
- ✓ $y-4=-2(x-5)$

Correct

The point-slope form for the equation of a line with slope m that goes through the point (x_0,y_0) is $y-y_0=m(x-x_0)$.

In this case, the slope $m=-2$ is given and the point $(5,4)$ on the line is given.

✓ 1 / 1 points

7.

Which of the following equations is for a line with the same slope as $y=-3x+2$?

- $y=8x-3$
- ✓ $y=-3x-8$

Correct

The slope-intercept formula for a line is $y=mx+b$, where m is the slope and b is the y-coordinate of the point where the line hits the y-axis.

This line has slope $m=-3$ which is the same slope as the given line.

- $y=5x+2$
-

$y = 5x$

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1 / 1 points

8.
Which of the following equations is for a line with the same y-intercept as $y = -3x + 2$?

- $y = 5x$
- $y = -3x - 8$
- $y = 8x - 3$
- ✓ $y = 5x + 2$

Correct
The the slope-intercept formula for a line is $y = mx + b$, where m is the slope and b is the y-coordinate of the point where the line hits the y-axis. This line has a y-intercept of 2 which is the same as the given line.

1 / 1 points

9.
How many lines contain both the point $A = (1, 1)$ and the point $B = (2, 2)$?

- ✓ 1

Correct
The line with equation $y = x$ is the one and only line that meets the stated requirements.

- Infinity many
- 2

None

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1 / 1 points

10.
Suppose that we have two sets, $A = \{a, b\}$ and $Z = \{x, y\}$. How many different functions $F : A \to Z$ are possible?

- There are none
- There are infinitely many
- 1
- 4

Correct

A function $F : A \to Z$ is a rule which assigns an element $F(a) \in Z$ to each element $a \in A$.

There are two elements in A; namely, a and b. For each of these elements, there are two assignment choices we could make: x and y.

Here are the four possible functions:

$F(a) = x, F(b) = y$, OR

$F(a) = y, F(b) = x$, OR

$F(a) = x, F(b) = x$, OR

$F(a) = y, F(b) = y$.

1 / 1 points

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11.
How many graphs contain both the point $A = (0, 0)$ and the point $B = (1, 1)$

- 2
- None
- Infinitely many

Correct
The graphs of
$f(x) = x, g(x) = x^2, h(x) = x^3, s(x) = x^4, \ldots$ all contain both A and B

- 1

1 / 1 points

12.
Suppose that $g : \mathbb{R} \to \mathbb{R}$ is a continuous function whose graph intersects the x-axis more than once. Which of the following statements is true?

- All of the above.
- g is strictly increasing.
- g is strictly decreasing.
- g is neither strictly increasing nor strictly decreasing.

Correct
The function g fails the horizontal line test, so it can neither be strictly increasing nor strictly decreasing.

1 / 1 points