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Graded quiz on Cartesian Plane and Types of Function

NOTE DE LA SOUMISSION LA PLUS RÉCENTE

84.61%

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

- ☐ (5, 7)
- ☐ (0, 0)
- ☒ (7, -1)
- ☐ (-4, 5)

✓ **Correct**

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

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2. Which of the following points is in the first quadrant of the Cartesian Plane? 1 / 1 point

- ☐ (-4, -7)
- ☒ (7, 11)
- ☐ (-5, 1)
- ☐ (5, -1)

✓ **Correct**

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

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3. Let A, B, C, D be points in the Cartesian Plane, and let the set $S = \{B, C, D\}$ 1 / 1 point

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 ?

- ☐ D
- ☐ B
- ☒ C
- ☐ A

✓ **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 .

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

- ☐ 1
- ☒ 5
- ☐ -25
- ☐ 25

✓ **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:

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

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1 / 1 point

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

- ☒ -1
☐ 1
☐ $\sqrt{2}$
☐ 0

✓ Correct

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

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

- ☐ $y - 4 = 2(x - 5)$
☐ $(5, 4)$
☒ $y - 4 = -2(x - 5)$
☐ $y - 5 = -2(x - 4)$

✓ 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.

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

- ☐ $y = 8x - 3$
☐ $y = 5x + 2$
☐ $y = 5x$
☒ $y = -3x - 8$

✓ 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.

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

- ☒ $y = 5x + 2$
☐ $y = 5x$
☐ $y = -3x - 8$
☐ $y = 8x - 3$

✓ 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 a y -intercept of 2 which is the same as the given line.

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

- ☒ 1
- ☐ 2
- ☐ infinitely many
- ☐ None

✓ Correct

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

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

0 / 1 point

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

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! Incorrect

Here are at least two different functions from A to Z : we could do $F(a) = x$ and $F(b) = y$ or we could do $F(a) = x$ and $F(b) = x$.

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

0 / 1 point

- ☐ None
- ☐ 1
- ☐ Infinitely many
- ☒ 2

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! Incorrect

Here are at least three functions whose graphs contain both A and B : $f(x) = x$, $g(x) = x^2$, and $h(x) = x^3$

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

1 / 1 point

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

✓ Correct

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

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13. Find the slope of the line segment between the points $A = (1, 1)$ and $B = (5, 3)$.

1 / 1 point

- ☐ $\sqrt{20}$
- ☐ 2
- ☐ 4
- ☒ $\frac{1}{2}$

✓ Correct

The slope of this line segment is $\frac{3-1}{5-1} = \frac{1}{2}$, where $3-1$ is the rise and $5-1$ is the run.