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NOTE
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Graded quiz on Cartesian Plane and Types of Function

NOTE DE LA SOUMISSION LA PLUS RÉCENTE
100%

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

   1 / 1 point

   ○ $(5, 7)$

   ○ $(-4, 5)$

   ⦿ $(7, -1)$

   ○ $(0, 0)$

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

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

   1 / 1 point

   ○ $(5, -1)$

   ○ $(-4, -7)$

   ⦿ $(7, 11)$

   ○ $(-5, 1)$

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

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

   ⦿ C

   ○ B

   ○ 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.

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

○ 25

◉ 5

○ -25

○ 1

✓ **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:

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

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 \begin {align}\frac{0-1}{1-0} = -1\end {align}

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.

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

◉ $y = -3x - 8$

○ $y = 5x + 2$

○ $y = 8x - 3$

○ $y = 5x$

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

1 / 1 point

○ $y = 5x$

◉ $y = 5x + 2$

○ $y = -3x - 8$

○ $y = 8x - 3$

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

1 / 1 point

◉ 1

○ infinitely many

○ None

○ 2

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

1 / 1 point

◉ 4

○ There are infinitely many

○ 1

○ There are none

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

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

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

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

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

`1 / 1 point`

○ 2

◉ Infinitely many

○ None

○ 1

✓ **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

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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?

`1 / 1 point`

○ g is strictly decreasing.

○ All of the above.

◉ g is neither strictly increasing nor 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`

○ 2

○ 4

○ $\sqrt{20}$

◉ \begin {align}\frac12\end {align}

✓ **Correct**

The slope of this line segment is \begin {align}\frac{3-1}{5-1} = \frac12\end {align}, where $3 - 1$ is the rise and $5 - 1$ is the run.