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Graded quiz on Cartesian Plane and Types of Function

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

☐ (5, 7)

☐ (-4, 5)

Richtig
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 Punkten

☐ (-4, -7)

☒ (7, 11)

☐ (-5, 1)

☐ (5, -1)

Richtig
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 Punkten

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 ?

☐ A

☒ C

☐ B

☐ D

Richtig
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 $A = (-2, 9)$ and $B = (-1, -9)$ 1 / 1 Punkten

☐ 1

☐ 25

☒ 5

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

In this case we have:

$$\sqrt{(-1-2)^2 + (-2-9)^2} = \sqrt{(-3)^2 + (-11)^2} = \sqrt{125} = 5$$

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

☒ -1

☐ -

☐ 0

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

6. Find the point-slope form of the equation of the line with slope -2 that goes through the point $(5, 4)$. 1 / 1 Punkten

☒ $y - 4 = -2(x - 5)$

☐ $y - 4 = 2(x - 5)$

☐ (5, 4)

☐ $y - 5 = -2(x - 4)$

Richtig
The point-slope form for the equation of a line with slope m that goes through the point

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 $y = -3x + 2$? 1 / 1 Punkten

☐ $y = 5x$

☒ $y = -3x - 8$

☐ $y = 8x - 3$

☐ $y = 5x + 2$

Richtig
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.

☐ $y = -3x - 8$

☒ $y = 5x + 2$

☐ $y = 5x$

☐ $y = 8x - 3$

Richtig
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.

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

☐ 2

☒ 1

☐ None

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

10. Suppose that we have two sets, $A = \{a, b\}$ and $Z = \{x, y\}$. How many different functions $F : A \rightarrow Z$ are possible? 1 / 1 Punkten

☐ 1

☒ 4

☐ There are infinitely many

☐ There are none

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

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

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

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

☐ 1

☐ None

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

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 Punkten

☐ g is strictly increasing.

☐ g is strictly decreasing.

☒ g is neither strictly increasing nor strictly decreasing.

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

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

☐ 4

☐ 2

☐ $\sqrt{20}$

☒ $\frac{1}{2}$

Richtig