**SOL 7.10 Task 1**

***\*Determine slope as a rate of change \* Write the proportional relationship as y = mx \****

***\* Graph a line of a proportional relationship\****

David walks at a rate of 10 yards in 4 seconds.

1. Use the double number line below to show how far Dave can walk in 14 seconds.

0 yds.

10 yds.

|  |  |
| --- | --- |
|  |  |
| 0 sec4 sec |  |

1. Use your thinking from the number line to complete the table below.

|  |  |
| --- | --- |
| **TIME****(seconds)** | **DISTANCE (yards)** |
| 1 |  |
|  | 5 |
| 4 |  |
| 8 |  |
|  | 30 |
| 14 |  |

1. Does this table represent a proportional or a non-proportional relationship? Explain your reasoning.

1. Determine the unit rate using your number line or the table.
2. How could this unit rate be used to find the yards walked in 14 seconds?
3. Write a rule to express how many yards (*y*) can be walked for any number of seconds (*x*).
4. Graph the points from your table on the coordinate grid below and connect them with a line.

**Y**

**Distance (yards)**

**X**

**Time (seconds)**

1. Should your line include the origin? Why?
2. What does this line represent?
3. What do the points (2, 5) to (4, 10) represent? Describe how the *y*-value changes as the *x*-value changes.
4. Draw a triangle that shows this change on your graph.
5. Continue drawing these triangles to show the rate of change along the line.
6. These rate of change triangles are also known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ***m***, of the line.
7. How is this ratio related to the unit rate?
8. Write the equation of the line in the form y=mx.
9. Draw a line on the graph above that represents Dave walking at a slower pace. What could be a value for slope to represent Dave walking at a slower pace? Explain your reasoning.
10. Given that a line includes the point (2, 6) and has a slope of *m* = 3, graph the line using slope triangles.

**x**

**y**

1. What is the equation of this line?
2. Graph $y= \frac{1}{3}x$ on the grid below.

**Y**

**X**

**SOL 7.10 Task 2**

***\* Determine y-intercept \* Write the additive relationship as y = x + b \* Graph a line of an additive relationship \****

An iPad game will cost $3 to download. In order to increase levels within the game, you will be charged $1 per level to advance.

1. Complete the table below.

|  |  |
| --- | --- |
| **Number of Levels Purchased (x)** | **Total Cost (y)** |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

1. Does this table show a proportional or a non-proportional relationship? Explain your reasoning.
2. Using the ordered pairs from the table, graph them below.

***y***

**Total Cost ($)**

1. Should the points in the graph be connected?

***x***

**Number of Levels Purchased**

1. Write an equation to represent the total cost (*y*) for number of levels purchased (x) for this game.

1. What is the total cost if 0 levels are purchased?
2. Graph this point and discuss what it represents in the problem.
3. The point at which the graph intersects the y-axis is known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. How would the graph change if there were no fee to purchase the game?

What would be the y-intercept?

1. Graph the equation $y=x-4.$
2. What is the *y*-intercept?

**y**



***x***