**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U3 HWK #4**

*Proportional Relationships as Linear Relationships*



1. Nate and Landon are competing in a

**Hot Dog Eating Contest**

Time (minutes)

Number of Hotdogs

5-minute-long Hot Dog eating contest.

Nate has a special strategy to eat 4 hot dogs

before the competition even begins to stretch

out his stomach.

**Nate**

The graph to the right represents what

 happened during the competition.

**Landon**

1. Compete the tables, fill in the x and y values then set up the ratios.

The variables x and y are most commonly used.

 *x* = time in minutes & y *=* number of total hotdogs eaten total

|  |
| --- |
| **Landon** |
| *x* | *y* | $$\frac{y}{x}$$ |
| 0 | 0 |  |
| 1 | 2.5 |  |
|  |  |  |
| 3 | 7.5 |  |
|  |  |  |
|  | 12.5 |  |

|  |
| --- |
| **Nate** |
| *x* | *y* | $$\frac{y}{x}$$ |
| 0 |  |  |
| 1 | 5.5 |  |
| 2 |  |  |
|  | 8.5 |  |
|  |  |  |
| 5 |  |  |

1. Find the rate of change (the number of hot dogs eaten per minute) for each boy.

**Landon: Nate:**

1. Write an equation that represents the number of hotdogs *y* for each boy after *x* minutes.

Landon: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nate: \_\_\_\_\_\_\_*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. For which person, Landon or Nate, is the relationship between time and number of hot dogs eaten proportional? Justify your answer.
2. During her Tuesday shift at Sweater Barn, Fiona sells the same amount of sweaters per hour. Two hours into her shift Fiona has sold 8 sweaters.
3. Find and describe the rate of change for this relationship.
4. Complete the table given below where *x* is the number of hours worked and *y* is the total number of sweaters sold.

|  |  |
| --- | --- |
| *x* | *y* |
|  |  |
|  |  |
|  |  |
|  |  |

1. Label and number the graph.
2. Graph the relationship on the below.
3. Write an equation that represents the relationship between the number of hours Fiona works (*x*) and the amount of sweaters she sells (*y*).

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. On Saturday Fiona gets to work 15 minutes early and sells three sweaters before her shift even begins. She then sells 4 sweaters every hour for the rest of her shift.

|  |  |
| --- | --- |
| *x**(hours)* | *y**(sweaters sold)* |
| 0 | 3 |
| 1 |  |
|  | 11 |
| 3 |  |

1. Find and describe the rate of change for this relationship.

.

1. Complete the table that represents this relationship.
2. Graph this relationship on the same coordinate plane as Tuesday’s information on the previous page.
3. Write an equation that represents the relationship between the number of hours Fiona works(*x*) and the amount of sweaters she sells(*y*).

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which day Fiona worked represents a proportional relationship? Explain how you know.
2. Compare the rate of change of both of the lines on the previous page by highlighting the change on the graph. What do you notice?
3. Nayala bought 5 pounds of mangos for $6.25.
4. What is the price per pound for the mangos that she bought?

A (1, 6.25)

1. Circle line below, A, B, or C,

that represents the cost in dollars (*y*)

B (3, 3.75)

to weight in pounds*(x*) relationship?

C (4, 2)