Lesson 3 Dining, Dancing, Driving Notes Day 2

ACTIVITY 3.2 Determining Slope from Context

For each context, complete each task.

- Identify the independent and dependent quantities.
- Write the ordered pairs of two points you can use to answer the question. Explain what each of your ordered pairs means in terms of the situation.
- Then, determine the rate described.

1. Bella’s Pizza Shop charges $4.50 for a small pizza, $7.00 for a medium pizza, and $9.00 for a large pizza. Toppings cost extra, depending on the size of the pizza ordered. Bruce ordered a large pizza with three toppings that cost a total of $12.60. What is the cost per number of toppings for a large pizza?

   \[
   \left(3,12.60\right) \rightarrow \left(0,9\right)
   \]

   \[
   \frac{y_2 - y_1}{x_2 - x_1} = \frac{9 - 12.60}{0 - 3} = \frac{-3.60}{-3} = \frac{1.20}{1}
   \]

   He paid $1.20 per topping.

   X

2. A maintenance crew is paving a road in 7-hour shifts. After 10 shifts, 1.25 miles of road have been paved. After 45 shifts, 5.625 miles of road have been paved. At what rate is the maintenance crew paving the road in miles per shift?

   \[
   (3,15) \rightarrow (8,40)
   \]

   \[
   \frac{y_2 - y_1}{x_2 - x_1} = \frac{40 - 15}{8 - 3} = \frac{25}{5} = 5 \text{ per } 5 \text{ miles}
   \]

   She bakes 60 rolls per hour.

   X

3. Melanie is baking breakfast rolls for a band camp fundraiser. She bakes 15 dozen breakfast rolls in 3 hours. After 8 hours, she has baked 40 dozen breakfast rolls. At what rate does Melanie bake breakfast rolls each hour?

   \[
   (3,15) \rightarrow (8,40)
   \]

   \[
   \frac{y_2 - y_1}{x_2 - x_1} = \frac{40 - 15}{8 - 3} = \frac{25}{5} = 5 \text{ dozen per } 5 \text{ hours}
   \]

   She bakes 60 rolls per hour.

   X

   I: time in hours
   D: number of rolls

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4. Aleesa's dog, Bull, has been put on a diet by his veterinarian. He weighs 149 pounds after 8 weeks on his diet. By Week 13, he weighs 134 pounds. What is his average weight loss per week?

\[
(8,149) \rightarrow (13,134)
\]

\[
\frac{y_2 - y_1}{x_2 - x_1} = \frac{134 - 149}{13 - 8} = \frac{-15}{5} = -3
\]

Bull loses 3 pounds per week.

Solve each problem.

Kathy is working after school to finish assembling the 82 favors needed for the school dance. When she starts at 3:15 PM, she counts the 67 favors that are already assembled. She works until 4:30 PM to finish the job.

a. How many favors can Kathy assemble each minute?

b. How many minutes does it take Kathy to assemble one favor?

c. Which rate is more meaningful in this situation? Explain your reasoning.
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6. Eddie rented a moving van to travel across the country. The odometer registered 34,567 miles after he drove for 4 hours. After 7 hours of driving, the odometer read 34,741 miles. What was Eddie's driving rate in miles per hour?

\[(x_1, y_1) \cdot \frac{(4, 34567) - (7, 34741)}{7 - 4} = \frac{174}{3} = \frac{58}{1}\]

Eddie drives 58 miles per hour.

7. Julie used her gift card for the local coffee shop to buy iced teas for herself and five friends. After she and one friend placed their orders, the balance on Julie's gift card was $14.85. After all six members of the group got their iced teas, she had a balance of $3.97 on her gift card. Determine the cost for one glass of iced tea.

\[(x_1, y_1) \cdot \frac{(2, 14.85) - (6, 3.97)}{6 - 2} = \frac{-10.88}{4} = \frac{-5.44}{2} = \frac{-2.72}{1}\]

She pays $2.72 per glass.
Review

Determine whether the relationships represented in the tables are linear. If so, calculate the rate of change.

1. Number of Bull’s-Eyes Made | Points Displayed
--- | ---
0 | 12,000
3 | 36,000
5 | 52,000
9 | 84,000

2. $x$ | $y$
--- | ---
6 | 12
-4 | 7
-12 | -3
-22 | -8

Determine whether the slope of the line represented by each equation is positive, negative, zero, or undefined.

3. $y = -x + 5$
4. $x = 0$

In the figure, parallel lines $r$ and $s$ are cut by transversal $w$.

5. List all pairs of corresponding angles.
6. List all pairs of alternate interior angles.