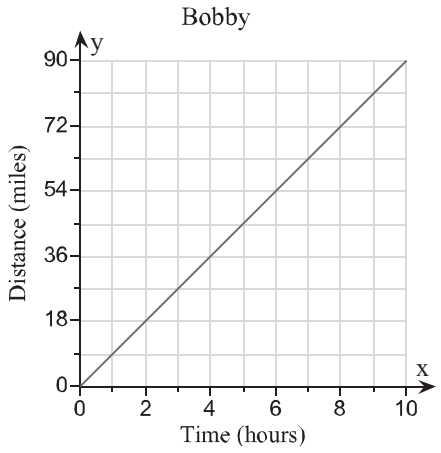
Name _____ Class _____ Date _____

# Practice 5-7

## *Problem Solving*

**1.** Caitlin, Sam, and Bobby are trying to see who runs the fastest. Caitlin says she can run 7 miles every hour. The table below shows the relationship between total miles Sam ran and time. The graph to the right shows the relationship for Bobby. Who runs the fastest?

| Sam | | | | |
|---|---|---|---|---|
| **Hours** | 2 | 3 | 4 | 5 |
| **Distance (miles)** | 20 | 30 | 40 | 50 |




❍ A. Sam runs the fastest.

❍ B. Caitlin runs the fastest.

❍ C. Bobby runs the fastest.

❍ D. They all run at the same speed.

**2.** A family went to a baseball game. They parked the car in a parking lot which charged $5. The cost per ticket was $21.

**a)** Write an equation for the total cost of going to the baseball game, where y is the total cost and x is the total number of people.

**b)** If the family spent $110, how many people went to the game?

**3.** Store G, Store H, and Store Z each design T-shirts. The equation y = 17x models the revenue for Store G, where y is the total revenue and x is the total number of T-shirts that are bought. The relationship between revenue and T-shirts bought for Store H is shown in the table. The line which shows the relationship between the revenue and T-shirts bought for Store Z passes through the points (0,0) and (2,32). Which store charges more per T-shirt?

| Store H | | | | |
|---|---|---|---|---|
| **T-Shirts Sold** | 2 | 3 | 4 | 5 |
| **Revenue** | 28 | 42 | 56 | 70 |

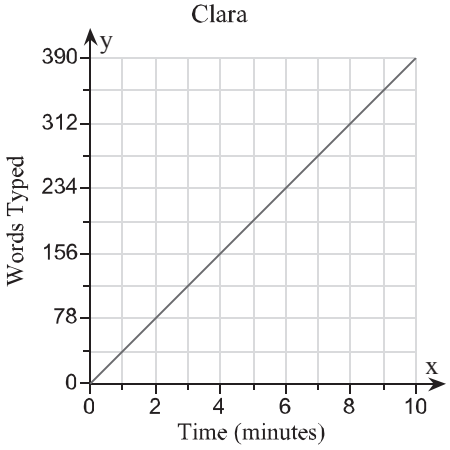
❍ A. All the stores charge the same per T-shirt.

❍ B. Store G charges more per T-shirt.

❍ C. Store Z charges more per T-shirt.

❍ D. Store H charges more per T-shirt.

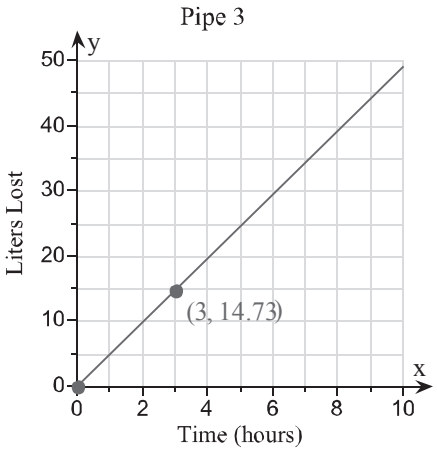
**4.** Ashton, Alexa, and Clara are working on a project. They want to know who types the fastest so that person can type the report. The equation y = 39x models the total number of words Ashton can type, where y is the number of words typed and x is the time in minutes. The table shows the relationship between words typed and minutes for Alexa. The graph shows the relationship for Clara. Who types the fastest?




| Alexa | | | | |
|---|---|---|---|---|
| **Minutes** | 2 | 3 | 4 | 5 |
| **Words Typed** | 78 | 117 | 156 | 195 |

❍ A. Clara types the fastest.
❍ B. They all type equally fast.
❍ C. Ashton types the fastest.
❍ D. Alexa types the fastest.

**5.** There are three pipes that are leaking, Pipe 1, Pipe 2, and Pipe 3. The rate at which Pipe 1 loses water is represented by the equation y = 8x, where y is the total amount of water in liters lost and x is the number of hours. The table shows the relationship between the liters lost and the number of hours for Pipe 2. The graph shows the relationship for Pipe 3.




| Pipe 2 | | | | |
|---|---|---|---|---|
| **Hours** | 2 | 3 | 4 | 5 |
| **Liters Lost** | 6 | 9 | 12 | 15 |

**a)** Which of the following is a good estimate for the slope of the line for Pipe 3?

❍ A. 5
❍ B. 4
❍ C. 6
❍ D. 7

**b)** Which pipe loses more water per hour?

❍ A. Pipe 2 loses more water per hour.
❍ B. Pipe 1 loses more water per hour.
❍ C. Pipe 3 loses more water per hour.

**6.** A math problem on a test asks the students to write and solve an equation for the following scenario. A town plants a tree in the park on the 300th anniversary of the town. The tree is 5 feet tall when it is planted. The local nursery says that the tree will grow 4 feet every year. Audrey says the equation is $y = 5x + 4$ and after 7 years the tree will be 33 feet tall.

**a)** Write an equation for the height of the tree, where y is the total height of the tree and x is the number of years that have passed since it was planted. Use integers or fractions for any numbers in the equation.

**b)** How many years will have passed when the tree is 33 feet tall?

**c)** What error might Audrey have made?

❍ A. Audrey did not find the correct number of years that have passed.

❍ B. Audrey switched the m and b terms of the equation.

❍ C. Audrey switched the m and b terms of the equation and did not find the correct number of years that have gone by.

**7.** Two friends are going on a vacation. The hotel room they are staying in is $150 per night. The total cost for both tickets to the theme park they are going to is $100.

**a)** Write an equation for how much money the friends will spend on the vacation, where y is the total cost of the vacation and x is the total number of nights.

**b)** How many nights are the friends going on vacation if they plan on spending $550? Draw algebra tiles to solve for the number of nights that the friends are on vacation.

**8.** Bailey is counting how much money she has in change. There are nickels, dimes, and quarters. She has a total of $3 in quarters and nickels.

**a)** Write an equation for how much money Bailey has in change, where y is the total amount of money in dollars and x is the number of dimes she has.

**b)** If Bailey has $10 in change, how many dimes does she have?

9. **Think About the Process** There are three beaches in a town, Beach 1, Beach 2, and Beach 3. The equation y = 101x represents the total number of people at Beach 1 after x hours. The table below shows the relationship between hours since Beach 2 opened and the total number of people. The graph that represents the number of people at Beach 3 passes through the points (0,0) and (4,404), where y is the total number of people and x is the number of hours since the opening.

| Beach 2 | | | | |
|---|---|---|---|---|
| **Hours** | 2 | 3 | 4 | 5 |
| **Total People** | 202 | 303 | 404 | 505 |

**a)** In order to compare the proportional relationships for each beach, what expression should you use to represent the slope of the graph for Beach 3?

**b)** Which beach has a greater number of people arriving per hour?

❍ A. They all have the same number of people arriving each hour.

❍ B. Beach 2 has the greatest number of people arriving each hour.

❍ C. Beach 3 has the greatest number of people arriving each hour.

❍ D. Beach 1 has the greatest number of people arriving each hour.

10. **Think About the Process** A bakery is making muffins to bring to the town picnic. They have already made 200 muffins. The bakery can make 40 muffins in an hour.

**a)** Write an equation for the total number of muffins the bakery will make, where y is the total number of muffins made and x is the number of additional hours spent making the muffins.

❍ A. $y = 200x + 40$

❍ B. $200 = 40x + y$

❍ C. $y = 40x + 200$

❍ D. $x = 40y + 200$

**b)** How many additional hours would the bakery spend making muffins if they make 640 muffins?

## *Practice 5-7:* ***Problem Solving***

**1.** A

**2. a)** $y = 21x + 5$

**b)** 5

**3.** B

**4.** B

**5. a)** A

**b)** B

**6. a)** $y = 4x + 5$

**b)** 7 yr

**c)** B

**7. a)** $y = 150x + 100$

**b)** 3

**8. a)** $y = 0.10x + 3$

**b)** 70

**9. a)** $\frac{\text{total people}}{\text{hours}}$

**b)** A

**10. a)** C

**b)** 11