


PROPORTIONAL RELATIONSHIPS: TABLES

A coffee shop displays their prices on a chalkboard menu. The prices are proportional, but some of the information got erased.

- What is the constant of proportionality?
- How can you use the value of k to find the missing prices on the menu? Use this method to complete the table.
- How does the total cost change as the cups of coffee increase by 1?

CUPS OF COFFEE	TOTAL COST
1	
2	\$5.50
3	
4	\$11.00



RATE OF CHANGE

- The rate of change describes how one quantity _____ in relation to the other quantity.
- In a proportional relationship, the rate of change is equal to the _____ of proportionality, k .

In 1-2, a representation of a proportional relationship is given. Use the information to create a table to represent the relationship. Then, find the rate of change.

1. $y = 9.5x$

x	y
0	
1	
2	
3	

Rate of change: _____

2. As the x -values increase by 2, the y -values increase by 60.

x	y
1	
2	
3	
4	

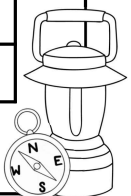
Rate of change: _____

Use your knowledge of proportional relationships to answer each question.

3. Camping Craze hires a graphic designer to create a new logo and marketing materials. The graphic designer charges Camping Craze \$45.00 per hour. Complete the table and then answer questions a-c.

- Find the rate of change.
- What does the rate of change represent in the context of the situation?
- Write an equation to show the relationship between x , the number of hours and y , the total charge of the graphic designer.

# OF HOURS	TOTAL CHARGE



4. Ronny earns \$27.50 for each driveway he shovels. Create a table to show the sum of the amount Ronny will earn shoveling 4 driveways.

5. Gasoline is priced at \$3.39 per gallon. Write an equation to represent the total cost, y , of purchasing x number of gallons.

6. Mrs. Dunn asked her students to represent $y = 5x$ in a table. Which student(s) correctly completed the task? Explain your reasoning.

SASHA

x	0	1	2	3	4
y	5	10	15	20	25

RONALD

x	0	1	2	3	4
y	0	5	10	15	20

7. Michelle reads a book for the school Read-A-Thon. The table shows the proportional relationship between x , the number of minutes and y , the total number of pages read.

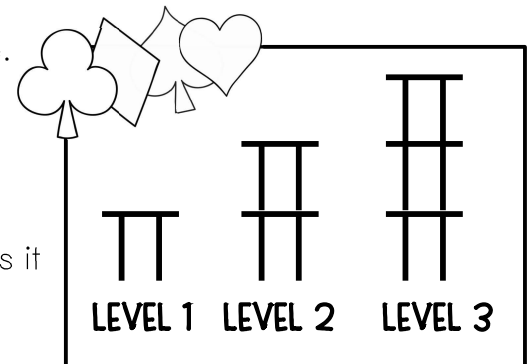
# OF MINUTES	TOTAL PAGES READ
30	15
60	30
90	45
120	60

- Determine the rate of change and explain its meaning in the context of this situation.
- Write an equation to represent the total number of pages as it relates to the number of minutes read.

8. Crystal creates a tower of playing cards. The number of cards at each level is shown below.

- Complete the table below to represent the rate of change.

LEVEL	1	2	3	4	5
# OF CARDS					



- Write an equation to represent the number of cards, y , as it relates to the level of the tower, x .

9. Sue traveled by car at a constant rate. After 4 hours, she had traveled 272 miles. Circle any of the following that represent the relationship between the distance traveled and the hours of driving.

A.

HOURS	5	6	7
MILES	340	408	476

B. $d = 272t$, where d is the distance in miles and t is the time in hours.

C. Sue is traveling 68 miles per hour.

PROPORTIONAL RELATIONSHIPS: TABLES

Use your understanding of rate of change to answer the questions below.

1. Three pounds of bananas cost \$1.95. Which of the following is not true?

- a. One pound of bananas is \$0.75.
- b. The equation $y = 0.65x$ could be used to determine the cost of x pounds of bananas.
- c. Seven pounds of bananas is \$4.55.

2. As the x -values increase by 1, the y -values increase by 15. Which equation shows this?

- a. $y = 15 + x$
- b. $y = 15 - x$
- c. $y = 15x$

For each table below, determine the rate of change and write an equation.

3.

x	y
1	4
2	8
3	12
4	16

rate of change: _____

equation: _____

4.

x	y
2	7
4	14
6	21
8	28

rate of change: _____

equation: _____

5.

x	y
4	3
5	3.75
6	4.5
7	5.25

rate of change: _____

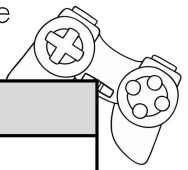
equation: _____

6. James is saving \$15 per week in order to purchase a gaming console. Create a table to represent the relationship between x , the number of weeks and y , the total amount James has saved.

a. Write an equation to represent the situation.

b. James has a goal to save \$360 in 22 weeks. Will he meet his goal? Explain.

x	y



7. Mr. Brown asked his students create a representation with a rate of change of 2.5. Circle the students who correctly completed the task.

ELIJAH

$$y = 2.5 + x$$

ZANE

Four boxes of
tissue cost \$10.

MARCO

$$y = 2.5x$$