LESSON MAKER PRO

Show the Rate

Use equations, points, tables, and words to communicate a proportional relationship.

GRADE 7 · TEKS 7.1.D

7.1.D "communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;"

NAME _____ DATE _____

ONE RATE, MANY FORMS

A proportional relationship has a constant unit rate and can be written as y = kx. Show the same relationship with an equation, a table or ordered pairs, and a rate sentence, then check that each form has the same rate.

WORKED EXAMPLE

A game earns 4 points per win. Let x be wins and y be points. Write an equation and give points for 3 and 5 wins.

1. Let x = wins and y = points.
2. The rate is 4 points per win, so y = 4x.
3. For x = 3, y = 12. For x = 5, y = 20.

Answer: y = 4x; (3, 12) and (5, 20); 4 points per win

PRACTICE 5 problems

1 A bike rental costs $7 per hour. Let x be hours and y be cost. Write an equation.

ANSWER _____

2 For y = 6x, list the points when x = 2 and x = 8.

ANSWER _____

3 A printer makes posters. The table has x: 1, 6 and y: 9, 54, where y is minutes. Write an equation and a rate sentence.

ANSWER _____

_____

4 A charity earns $14 for every 2 bracelets sold. Let x be bracelets and y be dollars. Write an equation and a rate sentence.

ANSWER _____

_____

5 For y = 8x, list the ordered pairs for x = 1 and x = 7.

ANSWER _____

APPLY IT Show your work

1 A gaming tournament awards 11 tokens for each challenge completed. Lin completes 6 challenges. Make a table for x = 1 and x = 6, write an equation, and state Lin's total.

WORK SPACE

ANSWER _____

2 A student saves $12 each week for headphones. After 7 weeks, show the relationship with an equation, an ordered pair, and a sentence.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two reward clubs give points for orders. Club A has y = 7x. Club B has the table x: 2, 6 and y: 18, 54. Write Club B's equation. Which club earns more points after 8 orders? Show both totals and explain in one sentence.

WORK SPACE AND ANSWER

ANSWER KEY

Show the Rate

GRADE 7 · TEKS 7.1.D

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bike rental costs $7 per hour. Let x be hours and y be cost. Write an equation.	**y = 7x**
2	For y = 6x, list the points when x = 2 and x = 8.	**(2, 12) and (8, 48)**
3	A printer makes posters. The table has x: 1, 6 and y: 9, 54, where y is minutes. Write an equation and a rate sentence.	**y = 9x; It takes 9 minutes per poster.**
4	A charity earns $14 for every 2 bracelets sold. Let x be bracelets and y be dollars. Write an equation and a rate sentence.	**y = 7x; The charity earns $7 per bracelet.**
5	For y = 8x, list the ordered pairs for x = 1 and x = 7.	**(1, 8) and (7, 56)**

PART 2 · APPLY IT

1. **Table: x: 1, 6; y: 11, 66. Equation: y = 11x. Lin earns 66 tokens.** Use the unit rate of 11 tokens per challenge. Multiply 11 by 6 to find the total.
2. **y = 12x; (7, 84); The student saves $84 after 7 weeks.** Let x be weeks and y be dollars saved. Multiply 12 by 7 to find the y-value.

CHALLENGE

Club B: y = 9x. Club A: 56 points. Club B: 72 points. Club B earns more because it gives 9 points per order, which is more than 7 points per order.

Accept equivalent rate sentences and correctly labeled tables. Accept ordered pairs written in either order when the prompt does not assign a specific order.