LESSON MAKER PRO

Changing Together

Connect quantities with tables, graphs, and equations.

GRADE 6 · 6.AF.C.21

6.AF.C.21 "Identify, represent, and analyze two quantities that change in relationship to one another in real-world or mathematical situations. a. Use tables, graphs..."

NAME _____ DATE _____

THE BIG IDEA

The independent variable is the quantity you choose or change. The dependent variable changes because of it. When a relationship starts at (0, 0) and grows at a constant rate, use y = rate × x.

WORKED EXAMPLE

A player earns the same number of points each round, with no starting points. Use the table to name the independent variable and write an equation.

Rounds (x)	Points (y)
3	21
6	42
9	63

1. The number of rounds can change, so x is independent.
2. Divide points by rounds: 21 / 3 = 7.
3. Write the equation: y = 7x.

Answer: The independent variable is rounds. y = 7x

PRACTICE 4 problems

1 A game awards 4 coins per level. Let x be levels and y be coins. Write an equation.

ANSWER _____

2 Each lap takes 8 minutes. Let x be laps and y be minutes. Which variable is dependent? Write an equation.

ANSWER _____

3 In y = 5x, x is bags and y is stickers. How many stickers are in 8 bags?

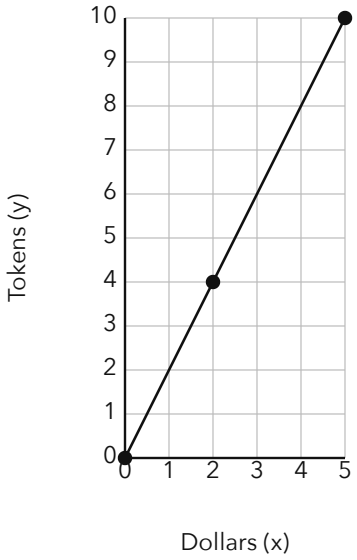
ANSWER _____

4 A team collects 10 cans each day. Let x be days and y be cans. Give the ordered pair (x, y) for 4 days.

ANSWER _____

APPLY IT Show your work

1 The graph shows dollars spent (x) and game tokens received (y). Write an equation. How many tokens do 4 dollars buy?



ANSWER _____

2 Each study session earns music time. Use the table to write an equation for x sessions and y music minutes. How many minutes do 12 sessions earn?

Sessions (x)	Music minutes (y)
0	0
2	10
4	20
8	40

ANSWER _____

CHALLENGE One step up

An arcade card starts with 8 points and gains 5 points per round. Let x be rounds and y be points. Write an equation. How many rounds will give you 48 points? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A game awards 4 coins per level. Let x be levels and y be coins. Write an equation.	**y = 4x**
2	Each lap takes 8 minutes. Let x be laps and y be minutes. Which variable is dependent? Write an equation.	**y is dependent. y = 8x**
3	In y = 5x, x is bags and y is stickers. How many stickers are in 8 bags?	**40 stickers**
4	A team collects 10 cans each day. Let x be days and y be cans. Give the ordered pair (x, y) for 4 days.	**(4, 40)**

PART 2 · APPLY IT

1. **y = 2x; 8 tokens** The graph shows 2 tokens per dollar. Substitute x = 4 to get y = 8.
2. **y = 5x; 60 minutes** The table shows 5 minutes per session, so y = 5x. For 12 sessions, y = 5 × 12 = 60.

CHALLENGE

y = 5x + 8. Eight rounds give 48 points because (48 − 8) / 5 = 8.

Accept equivalent equations using the stated variables. In the challenge, accept any clear explanation that accounts for the starting points before finding the number of rounds.