LESSON MAKER PRO

Slope Rule Quest

Find the rate, then write the rule.

GRADE 7 · 7.PFA.1.a

7.PFA.1.a "Determine the slope, m, as the rate of change in a proportional relationship between two quantities given a table of values, graph, or contextual situation and write an equation in the form y = mx to represent the direct variation..."

NAME _____ DATE _____

DIRECT VARIATION RULES

In y = mx, m tells how much y changes for each 1 x. For a direct variation, divide y by x using any point with x not 0. The equation has no added constant because the relationship goes through the origin.

WORKED EXAMPLE

Use the labeled points to find m and write the equation.

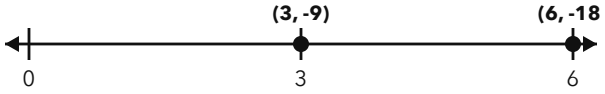


1. Use (2, 10): m = y/x = 10/2.
2. Simplify: m = 5.
3. Put 5 in y = mx: y = 5x.

Answer: m = 5; y = 5x

PRACTICE 4 problems

1 Use the labeled points to find m and write the equation.

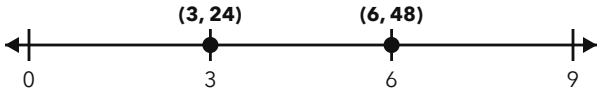


ANSWER _____

2 A direct variation has points (3, 21) and (6, 42). Find m and write the equation.

ANSWER _____

3 Use the labeled points to find m and write the equation.



ANSWER _____

4 A direct variation has points (7, -42) and (8, -48). Find m and write the equation.

ANSWER _____

APPLY IT Show your work

1 The table shows a club's cost for custom sticker sheets. Let x be sheets and y be total cost in dollars. Find the cost per sheet and write an equation.

CUSTOM STICKER SHEETS

x, sheets	y, cost ($)
7	42
9	54

ANSWER _____

2 A gaming club rents a private game server for $8 each month. Let x be months and y be total cost in dollars. Find m and write the equation.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A direct variation includes points (-3, 21) and (6, -42). Find m and write the equation. Explain how both points support your answer.

WORK SPACE AND ANSWER

ANSWER KEY

Slope Rule Quest

GRADE 7 · 7.PFA.1.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the labeled points to find m and write the equation.	**m = -3; y = -3x**
2	A direct variation has points (3, 21) and (6, 42). Find m and write the equation.	**m = 7; y = 7x**
3	Use the labeled points to find m and write the equation.	**m = 8; y = 8x**
4	A direct variation has points (7, -42) and (8, -48). Find m and write the equation.	**m = -6; y = -6x**

PART 2 · APPLY IT

1. **$6 per sheet; y = 6x** Divide total cost by sheets: 42/7 = 6. The direct variation equation is y = 6x.
2. **m = 8; y = 8x** The cost is $8 for each month, so the rate of change is 8. Multiply the number of months by 8.

CHALLENGE

m = -7; y = -7x. For (-3, 21), 21/-3 = -7. For (6, -42), -42/6 = -7.

Accept equivalent equation forms, such as y = 7x with the slope stated as 7. For the challenge, accept an explanation that both y/x ratios equal -7.