LESSON MAKER PRO

Patterns in Motion

Connect equations, tables, and graphs.

GRADE 6 · 6.AT.D.11

6.AT.D.11 "Use variables to represent two quantities in context that change in relationship to one another. Write an equation (one-step) to express one quantity, thought of as the dependent variable, in terms of the other quantity..."

NAME _____ DATE _____

THE BIG IDEA

When one quantity changes by the same amount for each increase of 1 in another quantity, use multiplication to write an equation. The input goes on the horizontal axis of a graph, and the output goes on the vertical axis.

WORKED EXAMPLE

Use the table to write an equation for stickers s in terms of packs p.

STICKER PACKS

Packs, p	Stickers, s
1	11
2	22

1. One pack has 11 stickers.
2. Multiply the number of packs by 11: s = 11p.

Answer: s = 11p

PRACTICE 4 problems

1 A game gives 3 points per star. Write an equation for points P from stars S.

ANSWER _____

2 A bike travels 4 miles each hour. Write an equation for miles d from hours t. Find d when t = 2.

ANSWER _____

3 Each song download uses 5 MB. Write an equation for data m from songs n. Find m for 3 songs.

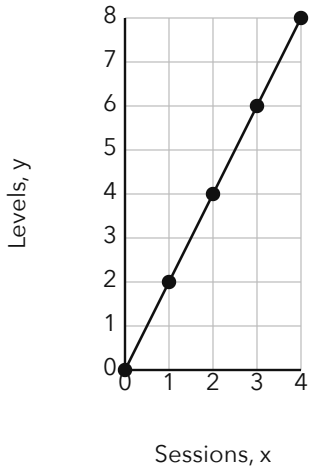
ANSWER _____

4 Two laps take 12 minutes at a steady pace. Write an equation for minutes m from laps l.

ANSWER _____

APPLY IT Show your work

1 The graph shows levels earned y after x game sessions. Write an equation for y in terms of x. Predict the levels earned after 5 sessions.



ANSWER _____

2 A streamer posts videos that are each 8 minutes long. Write an equation for total minutes m from the number of videos v. Find m for 4 videos.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Use the table to write an equation for coins c from rounds r. Does the point (3, 25) fit the pattern? Explain.

GAME COINS

Rounds, r	Coins, c
0	0
2	20
4	40

WORK SPACE AND ANSWER

ANSWER KEY

Patterns in Motion

GRADE 6 · 6.AT.D.11

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A game gives 3 points per star. Write an equation for points P from stars S.	**P = 3S**
2	A bike travels 4 miles each hour. Write an equation for miles d from hours t. Find d when t = 2.	**d = 4t; d = 8 miles**
3	Each song download uses 5 MB. Write an equation for data m from songs n. Find m for 3 songs.	**m = 5n; m = 15 MB**
4	Two laps take 12 minutes at a steady pace. Write an equation for minutes m from laps l.	**m = 6l**

PART 2 · APPLY IT

1. **y = 2x; 10 levels** The graph rises 2 levels per session. Substitute x = 5 to get y = 10.
2. **m = 8v; 32 minutes** Multiply the number of videos by 8. For 4 videos, m = 8(4) = 32.

CHALLENGE

c = 10r. No. After 3 rounds, the equation gives 30 coins, not 25.

Accept equivalent equations with the same variables and rate. For the challenge, accept any explanation that shows 25 coins does not match 3 rounds.