LESSON MAKER PRO

Slope Showdown

Compare rates from graphs, equations, and data.

GRADE 8 · 8.AT.A.1

8.AT.A.1 "Analyze and compare proportional relationships using slope. Graph proportional relationships and interpret the unit rate as the slope of the graph. Compare proportional relationships represented in different forms (e.g., graphs, equations..."

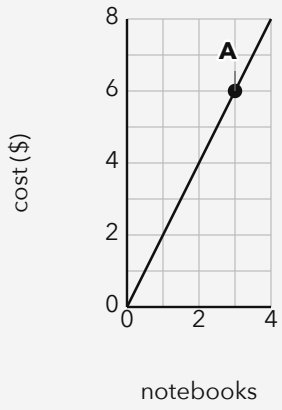
NAME _____ DATE _____

SLOPE IS A RATE

For a proportional relationship, slope = y/x for any point on the graph where x is not 0. The slope tells you how much y changes for one unit of x. To compare relationships, find each slope and check that the units match.

WORKED EXAMPLE

The graph shows the cost of notebooks. What is the cost per notebook?



1. Read point A: (3, 6).
2. Find the slope: 6/3 = 2.

Answer: $2 per notebook

PRACTICE 4 problems

1 A proportional relationship has points (1, 5) and (3, 15). What is its slope?

ANSWER _____

2 What is the slope of y = 4x?

ANSWER _____

3 A follows y = (3/2)x. B has points (4, 5) and (8, 10). Both are proportional. Which has the greater slope?

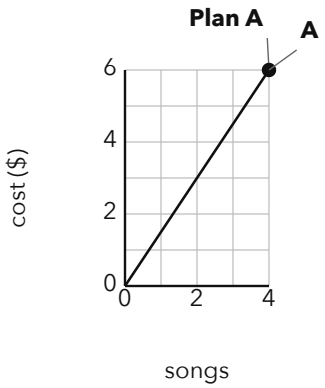
ANSWER _____

4 A proportional relationship includes (4, 1). What is its slope?

ANSWER _____

APPLY IT Show your work

1 Plan A's song price is graphed. Plan B costs $2.50 per song. Which costs less per song, and by how much?



ANSWER _____

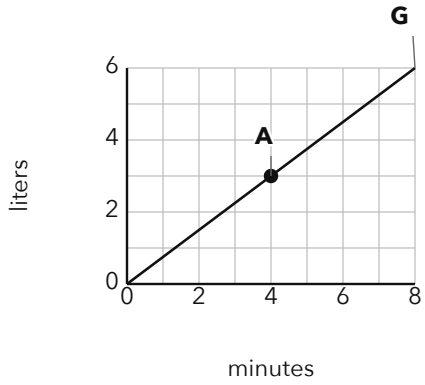
2 Game pass C costs $15 for 5 months. Pass D follows y = 7x, where x is months and y is dollars. Which costs less per month, and by how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two tanks fill at constant rates. Graph G shows liters after minutes. Tank H has (minutes, liters) pairs (2, 1) and (6, 3). After 8 minutes, which tank has more water, and how much more? Explain using slopes.



WORK SPACE AND ANSWER

ANSWER KEY

Slope Showdown

GRADE 8 · 8.AT.A.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A proportional relationship has points (1, 5) and (3, 15). What is its slope?	**5**
2	What is the slope of y = 4x?	**4**
3	A follows y = (3/2)x. B has points (4, 5) and (8, 10). Both are proportional. Which has the greater slope?	**A**
4	A proportional relationship includes (4, 1). What is its slope?	**1/4**

PART 2 · APPLY IT

1. **Plan A, by $1 per song** Plan A costs $6/4 = $1.50 per song. That is $1 less than Plan B's $2.50 per song.
2. **Pass C, by $4 per month** Pass C costs $15/5 = $3 per month. Pass D costs $7 per month, so C costs $4 less.

CHALLENGE

Tank G has 2 more liters. G fills at 3/4 liter per minute, so it has 6 liters after 8 minutes. H fills at 1/2 liter per minute, so it has 4 liters.

Accept equivalent fractions or decimals for slopes. In the challenge, accept any explanation that correctly uses both rates to find the 2-liter difference.