LESSON MAKER PRO

Ratio Relationship Check

Use tables, marks, and descriptions to test for a constant ratio.

GRADE 7 · MA.7.AR.4.1

MA.7.AR.4.1 "Determine whether two quantities have a proportional relationship by examining a table, graph or written description."

NAME _____ DATE _____

SPOT THE CONSTANT RATIO

Two quantities are proportional when y/x is the same for every pair. A proportional relationship can be written y = kx and includes the point (0, 0).

WORKED EXAMPLE

The number line shows y-values. Each mark is labeled with its matching x-value. Are x and y proportional?

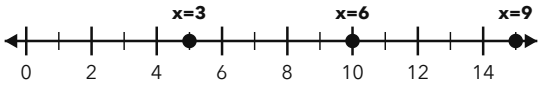


1. Find the first ratio: 140/20 = 7.
2. Check: 280/40 = 7 and 420/60 = 7.
3. The ratios match, so y = 7x.

Answer: Yes, y = 7x.

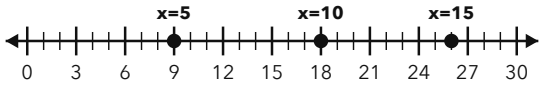
PRACTICE 4 problems

1 The number line shows y-values. Each mark is labeled with its matching x-value. Are x and y proportional? Write an equation.



ANSWER _____

2 The number line shows y-values. Each mark is labeled with its matching x-value. Are x and y proportional? Show the ratios.



ANSWER _____

3 For the pairs (x, y): (6, 18), (8, 24), and (10, 30), are x and y proportional? Write an equation.

ANSWER _____

4 A game gives 12 points for 2 rounds, 30 points for 5 rounds, and 54 points for 9 rounds. Are points and rounds proportional?

ANSWER _____

APPLY IT Show your work

1 A music store sells song downloads. Use the table to decide whether cost is proportional to songs downloaded.

SONG DOWNLOADS

Songs	Cost ($)
3	6
5	10
8	16

ANSWER _____

2 In an arcade app, Jay earns 18 tickets for 3 completed levels and 30 tickets for 5 completed levels. Are tickets proportional to completed levels?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game record shows (3, 18), (5, 30), and (8, 47), where x is levels and y is points. Is the relationship proportional? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Ratio Relationship Check

GRADE 7 · MA.7.AR.4.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The number line shows y-values. Each mark is labeled with its matching x-value. Are x and y proportional? Write an equation.	**Yes, y = 5/3x.**
2	The number line shows y-values. Each mark is labeled with its matching x-value. Are x and y proportional? Show the ratios.	**No. 9/5 = 18/10, but 26/15 is different.**
3	For the pairs (x, y): (6, 18), (8, 24), and (10, 30), are x and y proportional? Write an equation.	**Yes, y = 3x.**
4	A game gives 12 points for 2 rounds, 30 points for 5 rounds, and 54 points for 9 rounds. Are points and rounds proportional?	**Yes. The game gives 6 points per round, so y = 6x.**

PART 2 · APPLY IT

1. **Yes. Cost is proportional to songs downloaded, and y = 2x.** Divide cost by songs for each row. Each unit rate is 2 dollars per song.
2. **Yes. Jay earns 6 tickets per level, so y = 6x.** 18/3 = 6 and 30/5 = 6. The unit rates match.

CHALLENGE

No. The first two pairs have 6 points per level, so 8 levels should have 48 points, not 47.

Accept equivalent proportional equations, such as y/3 = x for y = 3x. For the challenge, require that students identify the expected value of 48 or show that 47/8 differs from 6.