LESSON MAKER PRO

Find the Rate

Use tables, graphs, and situations to find k.

GRADE 7 · MA.7.AR.4.2

MA.7.AR.4.2 "Determine the constant of proportionality within a mathematical or real-world context given a table, graph or written description of a proportional relationship."

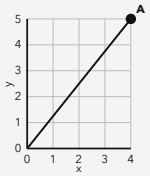
NAME _____ DATE _____

THE CONSTANT K

In a proportional relationship, y = kx. Divide y by x, using any pair with x not equal to 0, to find k.

WORKED EXAMPLE

Use the graph to find the constant of proportionality.



1. Use point A, (4, 5).
2. Find k = y/x.
3. k = 5/4.

Answer: k = 5/4

PRACTICE 4 problems

1 A cyclist travels 21 miles in 6 hours at a constant rate. Let y be miles and x be hours. Find k.

ANSWER _____

2 A proportional relationship includes the point (8, 12). Find k.

ANSWER _____

3 In y = kx, y = 27 when x = 9. Find k.

ANSWER _____

4 A music app downloads 26 songs in 13 minutes at a constant speed. Let y be songs and x be minutes. Find k.

ANSWER _____

APPLY IT Show your work

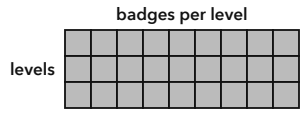
1 The table shows points earned in a video-editing challenge. Let y be points and x be clips edited. Find k.

VIDEO CHALLENGE POINTS

Clips edited, x	Points, y
2	14
6	42
9	63

ANSWER _____

2 At a coding club, each completed level earns the same number of badges. The array shows badges earned after 3 levels. Each row is one level. Let y be badges and x be levels. Find k.



ANSWER _____

CHALLENGE One step up

A game gives 12 tokens for 3 quests, 20 tokens for 5 quests, and 30 tokens for 8 quests. Is the relationship proportional? Explain using k.

WORK SPACE AND ANSWER

ANSWER KEY

Find the Rate

GRADE 7 · MA.7.AR.4.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A cyclist travels 21 miles in 6 hours at a constant rate. Let y be miles and x be hours. Find k.	**k = 7/2**
2	A proportional relationship includes the point (8, 12). Find k.	**k = 3/2**
3	In y = kx, y = 27 when x = 9. Find k.	**k = 3**
4	A music app downloads 26 songs in 13 minutes at a constant speed. Let y be songs and x be minutes. Find k.	**k = 2**

PART 2 · APPLY IT

1. **k = 7 points per clip** Divide points by clips. For example, 14/2 = 7.
2. **k = 9 badges per level** There are 27 badges for 3 levels. Compute 27/3 = 9.

CHALLENGE

No. 12/3 = 4 and 20/5 = 4, but 30/8 = 15/4, so there is no single constant of proportionality.

Accept equivalent fractions and unit-rate wording. For the challenge, students must show that the ratios are not all equal.