LESSON MAKER PRO

Units in Motion

Convert lengths, times, and rates to solve problems.

GRADE 6 · 6.RP.3d

6.RP.3d "Use ratio and rate reasoning to solve real-world and mathematical problems. Use ratio reasoning to convert measurement units; convert units appropriately when multiplying or dividing quantities."

NAME _____ DATE _____

MATCH THE UNITS

Use a conversion ratio to change a measurement without changing its amount. For a rate, write the units with the numbers, then multiply or divide so the units in your answer match what the question asks.

WORKED EXAMPLE

A faucet fills 35 cups in 7 minutes. At the same rate, how many cups will it fill in 1 hour?

1. 35 cups / 7 min = 5 cups/min.
2. 5 cups/min x 60 min/1 hr = 300 cups/hr.

Answer: 300 cups

PRACTICE 6 problems

1 Convert 5 yards to feet. Use 1 yard = 3 feet.

ANSWER _____

2 Convert 84 inches to feet. Use 12 inches = 1 foot.

ANSWER _____

3 Convert 3/4 hour to minutes.

ANSWER _____

4 A game lasts 150 seconds. How many minutes is that?

ANSWER _____

5 A robot moves 8 feet in 2 seconds. At that speed, how many feet does it move in 1 minute?

ANSWER _____

6 A ribbon is 6 feet long. How many 9-inch pieces can you cut from it? Use 1 foot = 12 inches.

ANSWER _____

APPLY IT Show your work

1 At robotics club, a toy car travels 90 centimeters in 6 seconds. At the same speed, how many meters will it travel in 1 minute? Use 100 centimeters = 1 meter.

WORK SPACE

ANSWER _____

2 At art club, each friendship bracelet needs 22 inches of cord. A roll has 5 yards of cord. How many complete bracelets can the club make, and how many inches of cord will remain? Use 1 yard = 36 inches.

WORK SPACE

ANSWER _____

CHALLENGE One step up

On a shared walking path, a scooter travels 1,320 feet in 4 minutes. The speed limit is 3 miles per hour. Is the scooter over the limit? Show both speeds in feet per minute and explain. Use 1 mile = 5,280 feet.

WORK SPACE AND ANSWER

ANSWER KEY

Units in Motion

GRADE 6 · 6.RP.3d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Convert 5 yards to feet. Use 1 yard = 3 feet.	**15 feet**
2	Convert 84 inches to feet. Use 12 inches = 1 foot.	**7 feet**
3	Convert 3/4 hour to minutes.	**45 minutes**
4	A game lasts 150 seconds. How many minutes is that?	**2 1/2 minutes**
5	A robot moves 8 feet in 2 seconds. At that speed, how many feet does it move in 1 minute?	**240 feet**
6	A ribbon is 6 feet long. How many 9-inch pieces can you cut from it? Use 1 foot = 12 inches.	**8 pieces**

PART 2 · APPLY IT

1. **9 meters** The car travels 90 / 6 = 15 centimeters per second. In 60 seconds it travels 900 centimeters, or 9 meters.
2. **8 complete bracelets, with 4 inches left** The roll has 5 x 36 = 180 inches. Eight bracelets use 8 x 22 = 176 inches, leaving 4 inches.

CHALLENGE

Yes. The scooter travels 1,320 / 4 = 330 feet per minute. The limit is (3 x 5,280) / 60 = 264 feet per minute. Since 330 > 264, the scooter is over the limit.

Accept 2.5 minutes for problem 4. For the challenge, accept an equivalent comparison in miles per hour if the conversions and conclusion are correct.