LESSON MAKER PRO

Units Tell Stories

Use rates, graphs, and measurements to make sense of quantities.

HIGH SCHOOL · GDA.NQ.B.2

GDA.NQ.B.2 "Use units as a way to understand problems and to guide the solution of multi-step problems. a. Choose and interpret units consistently in formulas. b. Choose and interpret the scale and the origin in graphs and data displays. c..."

NAME _____ **DATE** _____

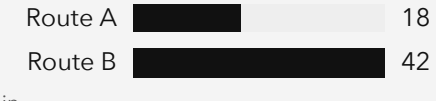
FOLLOW THE UNITS

Track what each quantity measures. Convert units before using a rate, then check that the units in your calculation give the unit you need.

WORKED EXAMPLE

The bars show two bike ride times. At 25 km/h, how much farther is Route B than Route A?

BIKE RIDE TIMES



1. 42 min - 18 min = 24 min
2. 24 min × (1 h/60 min) = 0.4 h
3. 0.4 h × 25 km/h = 10 km

Answer: Route B is 10 km farther.

PRACTICE 4 problems

1 You bike for 45 minutes at 8 km/h. How far do you travel?

ANSWER _____

2 You walk 1,500 m at 5 m/s. How long does it take, in minutes?

ANSWER _____

3 A tap fills a bottle with 2.4 L of water at 750 mL/min. How long does it take?

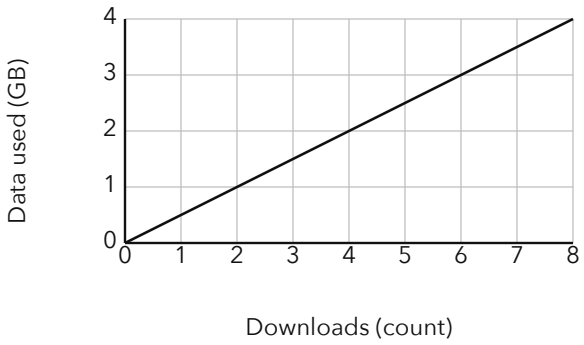
ANSWER _____

4 A van uses 4 gal of fuel for 96 mi. At the same rate, how many gallons will it use for 168 mi?

ANSWER _____

APPLY IT Show your work

1 The graph models data used by video downloads. If your plan has 4 GB, how much data is left after 6 downloads?



ANSWER _____

2 Your club orders 35 hoodies. Based on the table, what total should it budget? Assume a fixed setup fee and a constant price per hoodie.

HOODIE ORDERS

Hoodies (count)	Total cost ($)
10	110
20	190

ANSWER _____

CHALLENGE One step up

A running loop measures 1.2 km to the nearest 0.1 km. You run it 5 times. Estimate your total distance to the nearest kilometer. Why would 6.000 km claim too much precision?

WORK SPACE AND ANSWER

Units Tell Stories

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	You bike for 45 minutes at 8 km/h. How far do you travel?	**6 km**
2	You walk 1,500 m at 5 m/s. How long does it take, in minutes?	**5 min**
3	A tap fills a bottle with 2.4 L of water at 750 mL/min. How long does it take?	**3.2 min**
4	A van uses 4 gal of fuel for 96 mi. At the same rate, how many gallons will it use for 168 mi?	**7 gal**

PART 2 · APPLY IT

1. **1 GB** The graph shows 3 GB used for 6 downloads. Subtract from the plan limit: 4 GB - 3 GB = 1 GB.
2. **$310** The price per hoodie is ($190 - $110)/(20 - 10) = $8, and the setup fee is $110 - 10($8) = $30. For 35 hoodies, the total is $30 + 35($8) = $310.

CHALLENGE

6 km. The loop's length is measured only to the nearest 0.1 km, so writing 6.000 km suggests a level of accuracy the measurement does not support.

Accept equivalent calculations that keep units consistent. For the challenge, accept any explanation that connects the reported precision to the measured loop length.