Finding the Unit Rate

Finding unit rates: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

A rate compares quantities with different units. A unit rate has a second quantity of 1: 18 kilometers in 3 hours means $18 \div 3 = 6$ kilometers per hour. Keep the order and units: hours per kilometer would instead be $3/18 = 1/6$.

Worked example

Read 28 pages in 4 minutes. Find pages per minute.

1. The rate compares 28 pages with 4 minute.
2. Divide: $28 \div 4 = 7$ pages per minute.
3. Check: $7 \times 4 = 28$ pages.
Answer: 7 pages per minute.

Practice Problems

Show your thinking.

1. 24 dollars buys 6 pens. Sam reports $\frac{1}{4}$ dollar per pen. Correct the calculation and units.

2. A pump delivers 9 liters per minute. It delivers 63 liters. Find the elapsed time.

3. A car travels 150 km in 3 hours. A student subtracts $150 - 3 = 147$ to find its speed. Repair it.

4. A rate table has 2 hours/14 km and 5 hours/x km. Find x if the rate is constant.

Hours	2	5
km	14	x

5. The price per kg is 2.75 dollars. What mass costs 19.25 dollars?

6. At $\frac{3}{2}$ liters per minute, how many liters flow in 8 minutes?

7. A bus travels 72 km at 24 km/h. A student labels $72 \div 24 = 3$ as kilometers. Repair the label.

8. Create a distance/time pair for 8 meters per second using a time greater than 1 second.

Answer Key

1. 4 dollars per pen.
2. 7 minutes.
3. 50 km/h.
4. 35 km.
5. 7 kg.
6. 12 liters.
7. 3 hours.
8. One choice: 40 m in 5 s.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. $6 \div 24 = 1/4$ is pens per dollar, not dollars per pen.
2. $24 \div 6 = 4$ dollars per pen; $6 \times 4 = 24$ dollars.

Problem 2

1. Each minute contributes 9 liters, so time $= 63 \div 9 = 7$.
2. Check $9 \times 7 = 63$ liters.

Problem 3

1. The rate must divide distance by time: $150 \div 3 = 50$.
2. 50 km/h for 3 h gives $50 \times 3 = 150$ km.

Problem 4

1. $14 \div 2 = 7$ km/h.
2. $x = 7 \times 5 = 35$ km; $35 \div 5 = 7$ checks the same rate.

Problem 5

1. $19.25 \div 2.75 = 1925 \div 275 = 7$ kg.
2. $7 \times 2.75 = 19.25$ dollars checks the purchase.

Problem 6

1. $\frac{3}{2} \times 8 = \frac{24}{2} = 12$ liters.
2. Check $12 \div 8 = 3/2$ liters per minute.

Problem 7

1. $(72$ km$) \div (24$ km/h$) = 3$ h.
2. 24 km/h $\times\ 3$ h $= 72$ km checks that time is in hours.

Problem 8

1. Choose 5 seconds: $8 \times 5 = 40$ meters.
2. Then $40 \div 5 = 8$ meters per second, as required.

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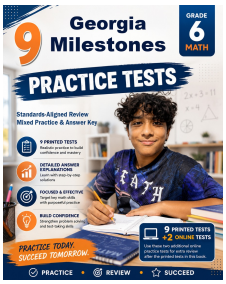

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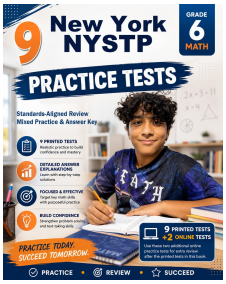

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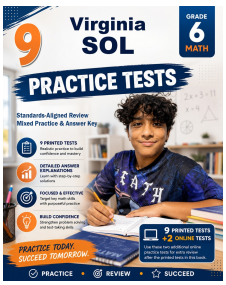

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