Solving Rate and Ratio Word Problems

Rate and ratio word problems: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Choose a ratio or a rate model from the units. For red:blue $= 2:3$ and 20 tiles, there are 5 parts, $20/5 = 4$ per part, so 8 red and 12 blue. For 12 km in 3 h, use $12/3 = 4$ km/h.

Worked example

Mix juice and water in ratio $3:5$ for 24 cups. Find each amount.

1. $3 + 5 = 8$ parts; $24 \div 8 = 3$ cups per part.
2. Juice $= 3 \times 3 = 9$ cups; water $= 5 \times 3 = 15$ cups.
Answer: 9 cups juice; 15 cups water.

Practice Problems

Show your thinking.

1. A $2:3$ red:blue mix has 30 tiles. A student calls $30/2 = 15$ the red count. Correct it.

2. A runner goes 15 km at 5 km/h. Find the missing time.

3. 4 tickets cost 18 dollars. Is 8 tickets for 32 dollars consistent? Correct the second price.

4. Cats:dogs is $3:4$, and there are 16 dogs. Find total animals.

5. One batch uses 6 cups oats and 4 cups seeds. A student adds 2 to each to scale up. Is the new mix equivalent?

6. A machine makes 9 parts/minute. How many minutes are needed for 81 parts?

Answer Key

1. 12 red.
2. 3 hours.
3. No; 36 dollars.
4. 28.
5. No: $8:6=4:3$, not $3:2$.
6. 9 minutes.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The whole has $2+3=5$ parts, so $30/5=6$ per part.
2. Red $=2\times 6=12$; blue $=18$ and $12+18=30$.

Problem 2

1. Time $=15/5=3$ hours.
2. Check $5\times 3=15$ km.

Problem 3

1. $8/4=2$, so double the ticket count.
2. $18\times 2=36$ dollars, $36-32=4$ more than the listed price.

Problem 4

1. $16/4=4$ groups; cats $=3\times 4=12$.
2. Total $=12+16=28$.

Problem 5

1. Original $6/4=3/2$.
2. New $8/6=4/3$; the difference $3/2-4/3=1/6$ is not zero.

Problem 6

1. $81/9=9$ minutes.
2. Check $9\times 9=81$ parts.

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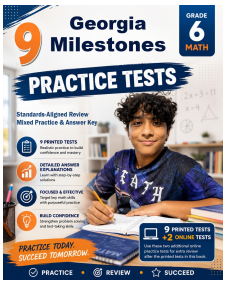

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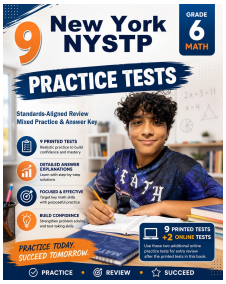

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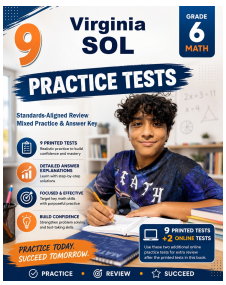

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