Solving Percent Problems

Solving percent problems: Mistakes and missing information

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

QUICK REVIEW

Percent means per 100: $35\% = 35/100 = 0.35$. To find a part, multiply the whole by the percent as a fraction. For example, 20% of 30 is $30 \times 20/100 = 6$. To find the percent use $100\times$part/whole; to find the whole divide the part by the percent fraction.

Worked example

What percent of 48 is 12?

1. The part of the whole is $\frac{12}{48} = \frac{1}{4}$.

2. The percent number is $\frac{1}{4} \times 100 = 25$. Thus the percentage is 25%.

Answer: 25%.

Practice Problems

Show your thinking.

1. Sue says 15% of 80 is 120. Correct her decimal placement.

2. 24 is 20% of a missing whole. Recover the whole.

3. A student divides 60 by 15 and reports 4%. Correct the percent for 15 out of 60.

4. A quarter of a number is 35. Find the number using a percent equation.

5. Correct the claim 12.5% of 48 is 60.

6. Explain the part-to-whole calculation for the missing p: $p\%$ of 90 equals 27.

7. A student thinks the whole is 4.5 when 18 is 25%. Recover the correct whole.

8. Recover the missing percentage: 5 out of 40.

Answer Key

1. 12.
2. 120.
3. 25%.
4. 140.
5. 6.
6. $p = 30$; the percentage is 30%.
7. 72.
8. $\frac{25}{2}\%$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. $15\% = 15/100 = \frac{3}{20}$.
2. The part is $80 \times \frac{3}{20} = 12$. Check: $12/80 = \frac{3}{20} = 15\%$.

Problem 2

1. 24 is 20% of the whole, so $24 = (\frac{1}{5})w$.
2. $w = 24 \div \frac{1}{5} = 120$; $120 \times \frac{1}{5} = 24$ checks.

Problem 3

1. The part of the whole is $\frac{15}{60} = \frac{1}{4}$.
2. The percent number is $\frac{1}{4} \times 100 = 25$. Thus the percentage is 25%.

Problem 4

1. 35 is 25% of the whole, so $35 = (\frac{1}{4})w$.
2. $w = 35 \div \frac{1}{4} = 140$; $140 \times \frac{1}{4} = 35$ checks.

Problem 5

1. $\frac{25}{2}\% = \frac{25}{2}/100 = \frac{1}{8}$.
2. The part is $48 \times \frac{1}{8} = 6$. Check: $6/48 = \frac{1}{8} = \frac{25}{2}\%$.

Problem 6

1. The equation is $90 \times \frac{p}{100} = 27$.
2. Divide by 90: $\frac{p}{100} = \frac{27}{90} = \frac{3}{10}$.
3. Multiply by 100: $p = \frac{3}{10} \times 100 = 30$. The percentage is 30%.

Problem 7

1. 18 is 25% of the whole, so $18 = (\frac{1}{4})w$.
2. $w = 18 \div \frac{1}{4} = 72$; $72 \times \frac{1}{4} = 18$ checks.

Problem 8

1. The part of the whole is $\frac{5}{40} = \frac{1}{8}$.
2. The percent number is $\frac{1}{8} \times 100 = \frac{25}{2}$. Thus the percentage is $\frac{25}{2}\%$.

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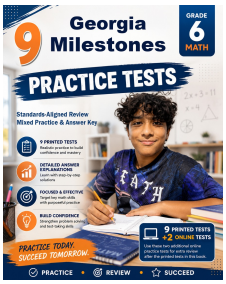

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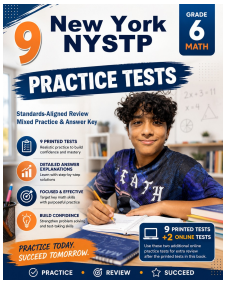

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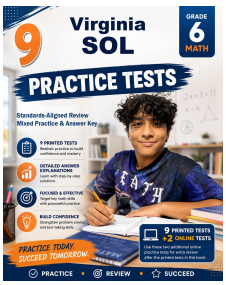

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