Solving Percent Problems

Solving percent problems: Applications and decisions

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. A coat costs 80 dollars. Find the 20% discount amount, not the sale price.

2. A club saves 30% of 180 dollars. How much is saved?

3. A tank contains 36 L and is 30% full. Find its capacity in liters.

4. A team wins 42 of 70 games. Find its win percent.

5. A 60-dollar meal has a 25% tip. Find the tip amount.

6. A device needs at least 80% charge. It has 48 of 64 charge units. Find its percent; is it ready?

7. A cyclist completes 12.5% of a 96-km route. Find kilometers completed.

8. A 35-dollar deposit is 25% of the total price. Recover the full price.

Answer Key

1. 16 dollars.
2. 54 dollars.
3. 120 liters.
4. 60%.
5. 15 dollars.
6. 75%. Not ready.
7. 12 km.
8. 140 dollars.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. $20\% = 20/100 = \frac{1}{5}$.

2. The part is $80 \times \frac{1}{5} = 16$. Check: $16/80 = \frac{1}{5} = 20\%$. The requested amount is 16 dollars.

Problem 2

1. $30\% = 30/100 = \frac{3}{10}$.

2. The part is $180 \times \frac{3}{10} = 54$. Check: $54/180 = \frac{3}{10} = 30\%$. The requested amount is 54 dollars.

Problem 3

1. 36 is 30% of the whole, so $36 = (\frac{3}{10})w$.

2. $w = 36 \div \frac{3}{10} = 120$; $120 \times \frac{3}{10} = 36$ checks. The requested amount is 120 liters.

Problem 4

1. The part of the whole is $\frac{42}{70} = \frac{3}{5}$.

2. The percent number is $\frac{3}{5} \times 100 = 60$. Thus the percentage is 60%.

Problem 5

1. $25\% = 25/100 = \frac{1}{4}$.

2. The part is $60 \times \frac{1}{4} = 15$. Check: $15/60 = \frac{1}{4} = 25\%$. The requested amount is 15 dollars.

Problem 6

1. The part of the whole is $\frac{48}{64} = \frac{3}{4}$.

2. The percent number is $\frac{3}{4} \times 100 = 75$. Thus the percentage is 75%.

3. $75 < 80$, so the charge is 5 percentage points too low.

Problem 7

1. $\frac{25}{2}\% = \frac{25}{2}/100 = \frac{1}{8}$.

2. The part is $96 \times \frac{1}{8} = 12$. Check: $12/96 = \frac{1}{8} = \frac{25}{2}\%$. The requested amount is 12 km.

Problem 8

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. The requested amount is 140 dollars.

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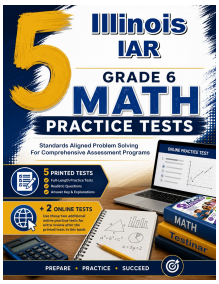

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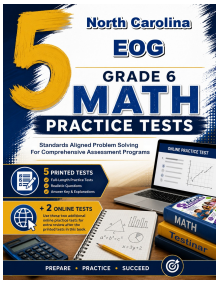

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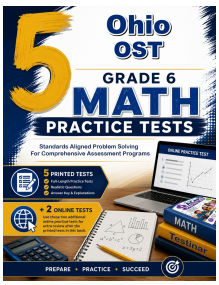

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