CCSS • 7.RP.3

Finding the Percent of a Number

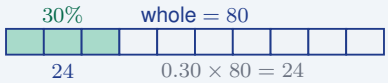
Name: _____	Date: _____	Score: _____ / 17

Finding a **percent of a number** is one of the most practical math skills you will ever learn—you will use it for tips, discounts, taxes, and data every day! The method is always the same: convert the percent to a decimal and multiply by the whole. It works for ordinary percents like 25%, big ones like 150%, and tiny ones like 0.5%. Remember: "percent of" just means "multiply by that part of 100," and you are good to go!

Key Concepts & Quick Review

Formula: $\text{Part} = \dfrac{\text{Percent}}{100} \times \text{Whole}$. **Example:** 30% of $80 = 0.30 \times 80 = 24$.

Proportion method: $\dfrac{\text{Part}}{\text{Whole}} = \dfrac{n}{100}$. Cross-multiply to solve. Always convert the percent to a decimal *before* multiplying to avoid errors.



Examples

① Find: (a) 45% of $\$120$ (b) 130% of 60 (c) 0.6% of 500

Think It Through: (a) $0.45 \times 120 = \$54$. (b) $1.30 \times 60 = 78$. (c) $0.006 \times 500 = 3$.

Answer: *(a)* $\$54$; *(b)* 78; *(c)* 3

② A student scored 72% on a 150-point test. How many points did the student earn? If the passing score is 60%, how many points was the minimum to pass?

Think It Through: Score: $0.72 \times 150 = 108$ points. Passing minimum: $0.60 \times 150 = 90$ points. The student passed by $108 - 90 = 18$ points.

Answer: 108 *points earned;* 90 *pts*

Practice Problems

Find the percent of each number.

1. 20% of 50 _____
2. 35% of 80 _____
3. 60% of 45 _____
4. 75% of 120 _____
5. 12% of 250 _____
6. 8% of 75 _____
7. 150% of 40 _____
8. 200% of 17 _____

9. 125% of 64 _____

10. 0.5% of 400 _____

11. 0.25% of 800 _____

12. 110% of 90 _____

13. 33% of 300 _____

14. 6.5% of 200 _____

15. 85% of 60 _____

Study Tips

- **Convert first, multiply second.** Writing 45% as 0.45 before multiplying prevents the most common mistake in percent problems.
- Use **benchmark percents** for mental checks: 10% of any number is just the number with the decimal moved left one place. 5% is half of that.
- If the percent is $> 100\%$, the **answer will be larger** than the original number — use this as a quick reasonableness check.

Word Problems

16. A school fundraiser has a goal of \$2,400. By Friday the students had raised 65% of the goal. How many dollars had they raised? How many dollars remained? What percent of the goal remains? _____

17. A recipe calls for $320\ g$ of flour. A baker wants to make 175% of the original recipe for a party and only 40% of the recipe for a small batch. Find the amount of flour needed for each version. How much more flour does the large batch need than the small batch? _____

Answer Keys

1) 10
2) 28
3) 27
4) 90
5) 30
6) 6
7) 60
8) 34
9) 80
10) 2
11) 2
12) 99
13) 99
14) 13
15) 51
16) $1,560 raised; $840 remaining; 35% remains.
17) 175%: $560\ g$; 40%: $128\ g$; difference: $432\ g$.

Step-by-Step Explanations

Strategy: For Unit Rates and Complex Fractions, ask "per one what?" and divide so the denominator represents one unit. For unit rates, the key question is always what one unit is supposed to represent.

Practice 1: $\frac{150}{6} =$ **Answer:** 25

For the first sample, divide the total by the number of groups so the rate is for one group.

Practice 15: $\left(\frac{9}{4}\right) \div \left(\frac{3}{8}\right) =$ **Answer:** 6

Late in the set, turn the division into multiplying by the reciprocal before simplifying.

Word-problem notes:

16. Answer: Unit rate: $\frac{3}{2}\ gal$/hr; in 8 hours: $12\ gal$.

Write the drip rate as a division expression: $\left(\frac{3}{4}\ gal\right) \div \left(\frac{1}{2}\ hr\right)$. Then simplify using division of fractions: $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{3}{2}\ gal$ per hour. To find the amount in 8 hours, multiply the unit rate by 8: $\frac{3}{2} \times 8 = 12\ gal$. Once you know the rate per hour, scaling up is straightforward.

17. Answer: Store A: $\$1.50$/lb; Store B: $\$1.80$/lb; Store A is the better deal.

A better deal means a lower cost per pound, so find each unit price. For Store A, divide price by pounds: $\left(\frac{15}{4}\right) \div \left(\frac{5}{2}\right) = \left(\frac{15}{4}\right) \times \left(\frac{2}{5}\right) = \frac{30}{20} = 1.50$ dollars per pound. For Store B, $5.40 \div 3 = 1.80$ dollars per pound. Since $1.50 < 1.80$, Store A is the better deal. In shopping problems, the smaller unit price wins.

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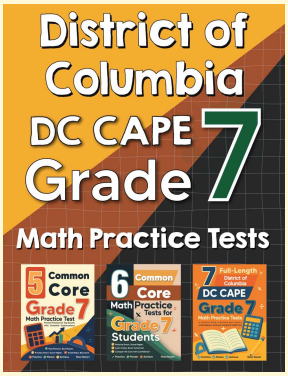

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