

3.7: “Solve Ratios and Proportions”
“I WILL ...
Solve Percentage Problems.”

I. Steps

- A. Remember, “ a is percent of b ” using the proportion: $\frac{a}{b} = \frac{p}{100}$
- B. Think of: $\frac{\textit{is}}{\textit{of}} = \frac{\textit{part}}{\textit{whole}}$
- C. Cross Multiply and Solve
- D. Check

II. Model Problems

Ex 1: What percent of 25 is 17?	Ex 2: What percent of 136 is 51?
Your Turn: What number is 15% of 88?	Ex 3: 20 is 12.5% of what number?

Ex 4: What percentage is the tax of \$1.44 on an item priced at \$24?

Your Turn: What is the percentage of 241 freshmen out of 804 students?

Ex 5: A survey asked 220 students to name their favorite pasta dish. Determine the percentage of students who like lasagna.

Pasta	Students
Spaghetti	83
Lasagna	40
Macaroni	33
Fettuccine	22
Baked Ziti	16
Primavera	15
Other	11

Your Turn: A survey asked 220 students to name their favorite pasta dish. If 25% of the students enjoyed two different pastas, determine the amount of students.

Pasta	Students
Spaghetti	83
Lasagna	40
Macaroni	33
Fettuccine	22
Baked Ziti	16
Primavera	15
Other	11


Assignment: Page 179: 4-32 EOO

USING PROPORTIONS Use a proportion to answer the question.

- | | |
|------------------------------|-------------------------------|
| 3. What percent of 75 is 27? | 4. What percent of 120 is 66? |
| 5. What number is 35% of 80? | 6. What number is 60% of 85? |
| 7. 81 is 54% of what number? | 8. 42 is 200% of what number? |

USING THE PERCENT EQUATION Use the percent equation to answer the question.

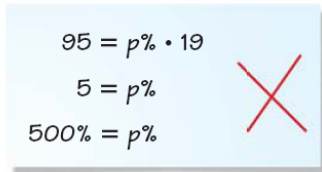
- | | |
|----------------------------------|---------------------------------|
| 9. What percent of 80 is 56? | 10. What percent of 225 is 99? |
| 11. What percent of 153 is 9.18? | 12. What number is 18% of 150? |
| 13. What number is 115% of 60? | 14. What number is 82% of 215? |
| 15. 7 is 28% of what number? | 16. 189 is 90% of what number? |
| 17. 41.8 is 44% of what number? | 18. 71.5 is 52% of what number? |

19.  **TAKS REASONING** What number is 87.5% of 512?

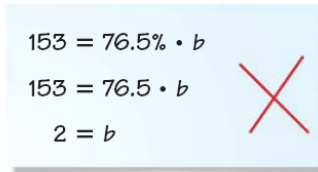
- (A) 5.85 (B) 448 (C) 585 (D) 4480

ERROR ANALYSIS Describe and correct the error in answering the question.

20. What percent of 95 is 19? 21. 153 is 76.5% of what number?



$$\begin{aligned} 95 &= p\% \cdot 19 \\ 5 &= p\% \\ 500\% &= p\% \end{aligned}$$



$$\begin{aligned} 153 &= 76.5\% \cdot b \\ 153 &= 76.5 \cdot b \\ 2 &= b \end{aligned}$$


SOLVING PERCENT PROBLEMS Answer the question when $n = 25$.

- | | |
|---|---|
| 22. What percent of 140 is $(n + 94)$? | 23. What percent of $(4n)$ is 96? |
| 24. What number is 52% of $(2n + 15)$? | 25. 25.5 is $(n - 8)\%$ of what number? |

SOLVING PERCENT PROBLEMS Find the percent. Round your answer to the nearest whole percent, if necessary.

- | | |
|--|---|
| 26. \$3.00 tip for a \$18.70 taxi fare | 27. \$1.44 tax on an item priced at \$24.00 |
| 28. 90 rock CDs out of 125 CDs | 29. 241 freshmen out of 804 students |

30. **WRITING** Would you use a proportion or the percent equation to solve the following problem: What number is 25% of 600? *Explain.*

31.  **TAKS REASONING** The side length of a square is 40% of the side length of another square. Is the area of the smaller square 40% of the area of the larger square? *Explain.*

32. **CHALLENGE** Let y be 10% of a number. What is 50% of the number? Write your answer in terms of y .