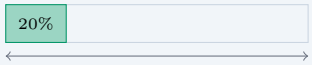
Percent Problems

Name: _____	Date: _____	Score: _____ / 18

Quick Review and Helpful Hints

Percent means "out of 100." To find a percent of a number, change the percent to a decimal by dividing by 100, then multiply. In a word problem the word "of" signals multiplication and "is" signals equals. So "What is 25% of 80?" becomes 0.25×80.

▷ **Example:** What is 20% of 60? **Work:** Change 20% to a decimal: $20 \div 100 = 0.20$. Then multiply by 60: $0.20 \times 60 = 12$. ★ **Answer:** 12



The shaded 20% of 60 equals 12.

Practice Problems

Find each percent of the given number.

1. Find 10% of 90 _____

2. Find 25% of 80 _____

3. Find 50% of 46 _____

4. Find 15% of 200 _____

5. Find 30% of 70 _____

6. Find 40% of 150 _____

7. Find 75% of 48 _____

8. Find 5% of 220 _____

9. Find 60% of 35 _____

10. Find 12% of 50 _____

11. Find 80% of 95 _____

12. Find 100% of 37 _____

13. Find 35% of 40 _____

14. Find 90% of 120 _____

Word Problems

15. A jacket costs $\$80$. It is on sale for 25% off. How much money is taken off the price? _____

16. A class has 30 students, and 40% of them ride the bus. How many students ride the bus? _____

17. A restaurant bill is $\$45$. You want to leave a 20% tip. How much is the tip? _____

18. A water tank is 60% full. If it holds 250 gallons when full, how many gallons are in it now? _____

Answer Keys

1. 9	**7.** 36	**13.** 14
2. 20	**8.** 11	**14.** 108
3. 23	**9.** 21	**15.** $20
4. 30	**10.** 6	**16.** 12 students
5. 21	**11.** 76	**17.** $9
6. 60	**12.** 37	**18.** 150 gallons

Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Percent means "out of 100," so 10% becomes the decimal 0.10. Multiply: $0.10 \times 90 = 9$. Quick tip: finding 10% just moves the decimal one place left, so 90 turns into 9. So the final answer is 9.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite 25% as 0.25, then multiply: $0.25 \times 80 = 20$. Since 25% is the same as $\frac{1}{4}$, you could also split 80 into four equal parts. So the final answer is 20.

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Half of an amount is 50%. Write it as 0.50 and multiply: $0.50 \times 46 = 23$ – exactly 46 shared into two equal halves. So the final answer is 23.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change 15% to 0.15 and multiply: $0.15 \times 200 = 30$. Here's a check you can do in your head: 10% of 200 is 20, 5% is half of that (10), and $20 + 10 = 30$. So the final answer is 30.

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Write 30% as 0.30 and multiply: $0.30 \times 70 = 21$. You can also think of it as three groups of 10%: 10% of 70 is 7, and $3 \times 7 = 21$. So the final answer is 21.

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Turn 40% into 0.40 and multiply: $0.40 \times 150 = 60$. Or picture four tenths: one tenth of 150 is 15, so $4 \times 15 = 60$. So the final answer is 60.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Because $75\% = \frac{3}{4}$, use 0.75: $0.75 \times 48 = 36$. You can also take three quarters of 48 directly: $48 \div 4 = 12$, then $3 \times 12 = 36$. So the final answer is 36.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Small percents work the same way. Write 5% as 0.05: $0.05 \times 220 = 11$. Remember 5% is half of 10%, and 10% of 220 is 22. So the final answer is 11.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite 60% as 0.60 and multiply: $0.60 \times 35 = 21$. That is six tenths of 35: one tenth is 3.5, so $6 \times 3.5 = 21$. So the final answer is 21.

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Change 12% to 0.12: $0.12 \times 50 = 6$. A shortcut: 50 is half of 100, so 12% of 50 is just half of 12. So the final answer is 6.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Write 80% as 0.80: $0.80 \times 95 = 76$. As a check, subtract the remaining 20% of 95 (19) from 95 to get 76. So the final answer is 76.

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is 100% means the whole amount, so $1.00 \times 37 = 37$. The value stays unchanged. So the final answer is 37.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite 35% as 0.35: $0.35 \times 40 = 14$. You can break it up too: 25% of 40 is 10, 10% is 4, and $10 + 4 = 14$. So the final answer is 14.

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Turn 90% into 0.90: $0.90 \times 120 = 108$. Quick check: 120 minus the missing 10% (12) also gives 108. So the final answer is 108.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A discount is a percent of the original price. Find 25% of $\$80$: $0.25 \times 80 = \$20$, and that $\$20$ is the amount taken off. So the final answer is $\$20$.

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The word "of" tells you to multiply. Find 40% of the 30 students: $0.40 \times 30 = 12$, so 12 students ride the bus. So the final answer is 12 students.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is A tip is a percent of the bill. Take 20% of $\$45$: $0.20 \times 45 = \$9$. Since 20% is one fifth, $45 \div 5 = 9$ works too. So the final answer is $\$9$.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is "How full" is a percent of the total capacity. Find 60% of 250: $0.60 \times 250 = 150$, so 150 gallons are in the tank. So the final answer is 150 gallons.

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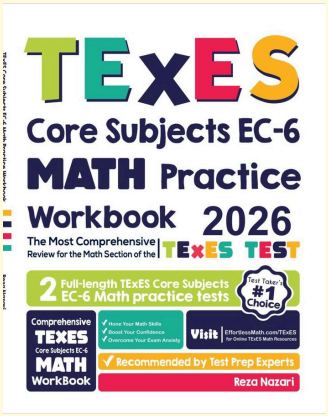

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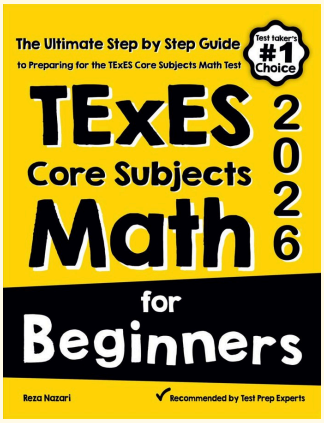

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