

Real-World Problems with Rational Numbers

Name: _____

Date: _____

Score: _____ / 18

Quick Review and Helpful Hints

Real problems often mix fractions, decimals, and negative numbers. Read carefully, decide which operation fits (add, subtract, multiply, or divide), and keep track of *signs* and *units* as you work.

▶ **Example:** A diver goes down $\frac{1}{2}$ of 30 ft, then 5 more ft. How far down in all? **Work:** $\frac{1}{2}$ of 30 is 15. Then add the 5 more: $15 + 5$.

★ **Answer:** 20 ft



Choose the operation; track the signs.

◆ Practice Problems

Compute each value.

1. $\frac{1}{2}$ of 30

8. $10 - 0.5$

2. 0.25×80

9. 0.2×50

3. $\frac{3}{4}$ of 20

10. $-6 - 4$

4. $12 + (-5)$

11. $\frac{2}{3}$ of 9

5. $-8 + 3$

12. 1.5×4

6. $2.5 + 1.5$

13. $\frac{3}{4} - \frac{1}{4}$

7. $\frac{1}{2} + \frac{1}{4}$

14. -3×4

◆ Word Problems

15. A recipe needs $\frac{3}{4}$ cup twice. How much in total?

16. The temperature was 5° , then dropped 8° . What is the new temperature?

17. A \$40 item is $\frac{1}{4}$ off. What is the discount amount?

18. You walk 2.5 mi, then 1.5 mi. What is the total distance?



Answer Keys

- | | | |
|-------|------------------|-------------------|
| 1. 15 | 7. $\frac{3}{4}$ | 13. $\frac{1}{2}$ |
| 2. 20 | 8. 9.5 | 14. -12 |
| 3. 15 | 9. 10 | 15. $\frac{3}{2}$ |
| 4. 7 | 10. -10 | 16. -3 |
| 5. -5 | 11. 6 | 17. 10 |
| 6. 4 | 12. 6 | 18. 4 mi |

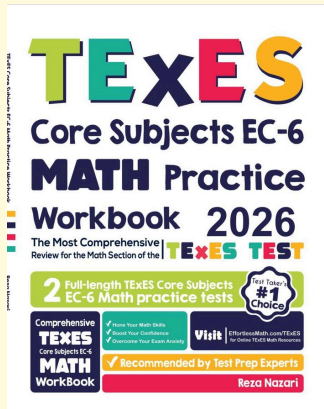
Step-by-Step Explanations

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 $\frac{1}{2} \times 30 = 15$. So the final answer is 15.
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 $0.25 \times 80 = 20$. 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 $\frac{3}{4} \times 20 = 15$. So the final answer is 15.
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 $12 - 5 = 7$. So the final answer is 7.
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 $-8 + 3 = -5$. So the final answer is -5.
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 $2.5 + 1.5 = 4$. So the final answer is 4.
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 $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$. So the final answer is $\frac{3}{4}$.
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 $10 - 0.5 = 9.5$. So the final answer is 9.5.
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 $0.2 \times 50 = 10$. So the final answer is 10.
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 $-6 - 4 = -10$. So the final answer is -10.
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 $\frac{2}{3} \times 9 = 6$. So the final answer is 6.
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 $1.5 \times 4 = 6$. So the final answer is 6.
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 $\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$. So the final answer is $\frac{1}{2}$.
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 $-3 \times 4 = -12$. So the final answer is -12.
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 $\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = \frac{3}{2}$ cups. So the final answer is $\frac{3}{2}$.
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 $5 - 8 = -3$. So the final answer is -3.
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 $\frac{1}{4} \times 40 = 10$. So the final answer is 10.
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 $2.5 + 1.5 = 4$ mi. So the final answer is 4 mi.



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