

# 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. $0.25 \times 80$            | _____ | 9. $0.2 \times 50$              | _____ |
| 3. $\frac{3}{4}$ of 20         | _____ | 10. $-6 - 4$                    | _____ |
| 4. $12 + (-5)$                 | _____ | 11. $\frac{2}{3}$ of 9          | _____ |
| 5. $-8 + 3$                    | _____ | 12. $1.5 \times 4$              | _____ |
| 6. $2.5 + 1.5$                 | _____ | 13. $\frac{3}{4} - \frac{1}{4}$ | _____ |
| 7. $\frac{1}{2} + \frac{1}{4}$ | _____ | 14. $-3 \times 4$               | _____ |

### Word Problems

15. A recipe needs  $\frac{3}{4}$  cup twice. How much in total? \_\_\_\_\_
16. The temperature was  $5^\circ$ , then dropped  $8^\circ$ . 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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