

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.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

18.

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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