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 _____
2. 0.25×80 _____
3. $\frac{3}{4}$ of 20 _____
4. $12 + (-5)$ _____
5. $-8 + 3$ _____
6. $2.5 + 1.5$ _____
7. $\frac{1}{2} + \frac{1}{4}$ _____
8. $10 - 0.5$ _____
9. 0.2×50 _____
10. $-6 - 4$ _____
11. $\frac{2}{3}$ of 9 _____
12. 1.5×4 _____
13. $\frac{3}{4} - \frac{1}{4}$ _____
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. $\boxed{15}$	**7.** $\boxed{\frac{3}{4}}$	**13.** $\boxed{\frac{1}{2}}$
2. $\boxed{20}$	**8.** $\boxed{9.5}$	**14.** $\boxed{-12}$
3. $\boxed{15}$	**9.** $\boxed{10}$	**15.** $\boxed{\frac{3}{2}}$
4. $\boxed{7}$	**10.** $\boxed{-10}$	**16.** $\boxed{-3}$
5. $\boxed{-5}$	**11.** $\boxed{6}$	**17.** $\boxed{10}$
6. $\boxed{4}$	**12.** $\boxed{6}$	**18.** $\boxed{4 \text{ mi}}$

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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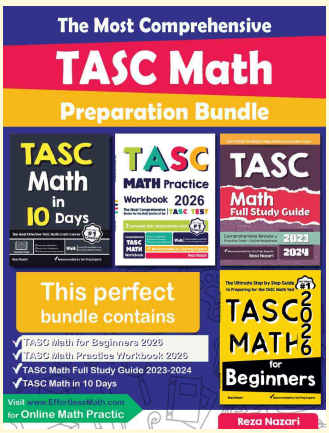

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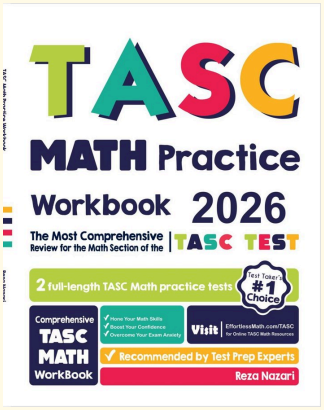

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