

# Algebra: Word Problems with Real Numbers



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Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_ / 8

## DIRECTIONS

Translate each word problem into an algebraic expression or equation, then solve using integers, fractions, and decimals as needed.

1. Write as an integer:

**A diver is 15 meters below sea level.**

Answer: \_\_\_\_\_

2. Write as a fraction and decimal:

**3 out of 8 students passed the quiz.**

Answer: \_\_\_\_\_

3. Translate then simplify:

**The sum of  $-4$  and  $9$ , decreased by  $3$ .**

Answer: \_\_\_\_\_

4. Find the additive inverse:

**The additive inverse of  $-7$ .**

Answer: \_\_\_\_\_

5. Solve:

**Maria owed \$45. She paid \$18 back. How much still owed?**

Answer: \_\_\_\_\_

6. Solve:

**A tank lost  $\frac{1}{4}$  of its 80 L. How much water remains?**

Answer: \_\_\_\_\_

7. Solve:

**Temp dropped  $3.5^\circ$  each hour for 4 hours. Total change?**

Answer: \_\_\_\_\_

8. Solve:

**Add  $-12$ ,  $8$ , and the additive inverse of  $-5$ .**

Answer: \_\_\_\_\_

Based on the Numberbender lesson "Word Problems with Real Numbers" • [youtu.be/Ktp95pPYUdw](https://youtu.be/Ktp95pPYUdw)

# Answer Key & Solutions

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## TEACHER NOTES

Items 1-2: translating real-world situations into integers. Items 3-4: additive inverse. Items 5-6: fraction and decimal word problems. Items 7-8: multi-step real-number problems. Encourage students to define a variable before writing the equation.

1. Write as an integer: A diver is 15 meters below sea level.

**Answer: -15**

*Below sea level = negative; 15 m below = -15.*

2. Write as a fraction and decimal: 3 out of 8 students passed the quiz.

**Answer:  $\frac{3}{8} = 0.375$**

*$3 \div 8 = 0.375$ .*

3. Translate then simplify: The sum of -4 and 9, decreased by 3.

**Answer: 2**

*$(-4 + 9) - 3 = 5 - 3 = 2$ .*

4. Find the additive inverse: The additive inverse of -7.

**Answer: 7**

*Additive inverse of -7 is 7 (they sum to 0).*

5. Solve: Maria owed \$45. She paid \$18 back. How much still owed?

**Answer: -\$27**

*$-45 + 18 = -27$ ; she still owes \$27.*

6. Solve: A tank lost  $\frac{1}{4}$  of its 80 L. How much water remains?

**Answer: 60 L**

*$\frac{1}{4}$  of 80 = 20 removed;  $80 - 20 = 60$  L.*

7. Solve: Temp dropped  $3.5^\circ$  each hour for 4 hours. Total change?

**Answer:  $-14^\circ$**

*$-3.5 \times 4 = -14^\circ$  total drop.*

8. Solve: Add -12, 8, and the additive inverse of -5.

**Answer: 1**

*Additive inverse of -5 is +5;  $-12 + 8 + 5 = 1$ .*