

1. Identify the set of real numbers in which each number belong. Give the name of the most specific set.

Letter only.

Natural (N)	Whole (N)	Integer (Z)	Rational (Q)	Irrational (I)
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|--------|----------|------------------|
| a. -12 | c. π | e. $\frac{7}{2}$ |
| b. 0 | d. 0.125 | f. $\sqrt{15}$ |

2. What properties of real numbers are used in each step of the following simplification?

$$\begin{aligned} \frac{1}{4}(3 \cdot 4) &= \frac{1}{4}(4 \cdot 3) & \text{a. } \underline{\hspace{2cm}} \\ &= \left(\frac{1}{4} \cdot 4\right)3 & \text{b. } \underline{\hspace{2cm}} \\ &= 1 \cdot 3 & \text{c. } \underline{\hspace{2cm}} \\ &= 3 & \text{d. } \underline{\hspace{2cm}} \end{aligned}$$

Simplify.

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|---------------------------|-------------------|--------------------|-------|-------|
| 3. $ 2 - 7 + 3$ | A. 8 | B. -8 | C. 2 | D. -2 |
| 4. $-\frac{3}{2} -5 + 9 $ | A. $\frac{33}{2}$ | B. $-\frac{19}{2}$ | C. -6 | D. 6 |

Evaluate each expression for the given value of the variable.

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|-------------------------------|--------|--------|--------|--------|
| 5. $-a^2 + 4a - 17$; $a = 5$ | A. -10 | B. -22 | C. -28 | D. 26 |
| 6. $3r^2 - 5r + 7$; $r = 3$ | A. 10 | B. 19 | C. 73 | D. -19 |

Simplify by combining like terms.

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|------------------------|--------------------------------------|
| 7. $4m - 7n - 2m + 6n$ | 8. $3(a + 5b) - \frac{7}{2}(2b - a)$ |
|------------------------|--------------------------------------|

9. The expression $19.95 + 0.20x$ models the daily cost of renting a car. In the expression, x represents the number of miles the car is driven. Find the cost of renting a car for a day when the car is driven 50 miles.

Solve each equation.

10. $3m - 15 = 2m - 19$

- A. -34 B. -4 C. 34 D. 4

11. $4(3p - 2) = 28$

- A. 2.5 B. 38 C. 3 D. $\frac{5}{3}$

12. $5(z - 4) + 13 = 3(z + 7)$

- A. 14 B. -14 C. 7 D. -7

Solve each equation for x. State any restrictions on the variables.

13. $y = mx + b$

14. $\frac{x - 3}{6} + 3 = a$

Solve each formula for the indicated variable.

15. $P = 2l + 2w$, for l

16. $F = \frac{9}{5}C + 32$, for C

Solve each inequality. Graph the solutions.

17. $3m + 7 \geq 4$

18. $5 - 6x < 7$

Solve each equation. Check for extraneous solutions.

19. $|2x + 3| = 5$

20. $|x + 6| = 2x$

Solve each inequality. Graph the solutions.

21. $|3x + 2| \leq 5$

22. $5|3x - 7| + 4 > 29$

23. Find the mean, median and mode of this set of data. 55, 28, 45, 39, 54, 28, 59