

**A2.A.1: Absolute Value Equations 1: Solve absolute value equations and inequalities involving linear expressions in one variable**

- 1 What is the solution set of the equation  $|2x - 1| = 9$ ?
- |                |                |
|----------------|----------------|
| 1) $\{ \}$     | 3) $\{-5, 4\}$ |
| 2) $\{5, -4\}$ | 4) $\{5\}$     |
- 2 What is the solution set of the equation  $|2x + 1| = 9$ ?
- |                |                |
|----------------|----------------|
| 1) $\{-5\}$    | 3) $\{4, -5\}$ |
| 2) $\{-4, 5\}$ | 4) $\{4\}$     |
- 3 What is the solution set for the equation  $|3x + 2| = 5$ ?
- |                                 |                                     |
|---------------------------------|-------------------------------------|
| 1) $\{1\}$                      | 3) $\left\{1, -\frac{7}{3}\right\}$ |
| 2) $\left\{\frac{7}{3}\right\}$ | 4) $\left\{-1, \frac{7}{3}\right\}$ |
- 4 What is the solution set of the equation  $|4x - 3| = 17$ ?
- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 1) $\{5\}$                          | 3) $\left\{-5, \frac{7}{2}\right\}$ |
| 2) $\left\{5, -\frac{7}{2}\right\}$ | 4) $\left\{-3\frac{1}{2}\right\}$   |
- 5 What is the solution set for the equation  $|3 - 2x| = 5$ ?
- |                |             |
|----------------|-------------|
| 1) $\{-1, 4\}$ | 3) $\{-1\}$ |
| 2) $\{1, -4\}$ | 4) $\{4\}$  |
- 6 What is the solution set of the equation  $|2 - 3x| = 5$ ?
- |                                     |                |
|-------------------------------------|----------------|
| 1) $\{1\}$                          | 3) $\{5, -5\}$ |
| 2) $\left\{-1, \frac{7}{3}\right\}$ | 4) $\{ \}$     |

7 The solution set of the equation  $|2x - 1| + 4 = 8$

- |   |                                  |
|---|----------------------------------|
| 1) $\left\{\frac{5}{2}\right\}$               | 3) $\left\{-\frac{3}{2}\right\}$ |
| 2) $\left\{\frac{5}{2}, -\frac{3}{2}\right\}$ | 4) $\{\}$                        |

8 What is the solution set of the equation  $|x - 6| + 4 = 10$ ?

- |                 |                  |
|-----------------|------------------|
| 1) $\{0, 12\}$  | 3) $\{-12, 0\}$  |
| 2) $\{-8, 12\}$ | 4) $\{-12, -8\}$ |

9 What is the solution set of  $|x - 2| = 3x + 10$ ?

- |             |                 |
|-------------|-----------------|
| 1) $\{\}$   | 3) $\{-6\}$     |
| 2) $\{-2\}$ | 4) $\{-2, -6\}$ |

10 What is the solution set for the equation  $|3x - 1| = x + 5$ ?

- |                |                |
|----------------|----------------|
| 1) $\{-1\}$    | 3) $\{3\}$     |
| 2) $\{-1, 3\}$ | 4) $\{1, -3\}$ |

11 What is the solution set for the equation  $2x + |x| = -2$ ?

- |             |             |
|-------------|-------------|
| 1) $\{1\}$  | 3) $\{-1\}$ |
| 2) $\{-2\}$ | 4) $\{\}$   |

12 What is the solution set of the equation  $|4a + 6| - 4a = -10$ ?

- |                |                                    |
|----------------|------------------------------------|
| 1) $\emptyset$ | 3) $\left\{\frac{1}{2}\right\}$    |
| 2) $\{0\}$     | 4) $\left\{0, \frac{1}{2}\right\}$ |

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### Answer Section

1 ANS: 2 REF: 068923siii

2 ANS: 3 REF: 089717siii

3 ANS: 3 REF: 089417siii

4 ANS: 2 REF: 089518siii

5 ANS: 1 REF: 011005b

6 ANS: 2 REF: 088727siii

7 ANS: 2 REF: 010223siii

8 ANS: 1 REF: 080222siii

9 ANS: 2

$x - 2 = 3x + 10$   $-6$  is extraneous.  $x - 2 = -3x - 10$

$$-12 = 2x$$

$$4x = -8$$

$$-6 = x$$

$$x = -2$$

REF: 061513a2

10 ANS: 2 REF: 019624siii

11 ANS: 2 REF: 089923siii

12 ANS: 1

$$4a + 6 = 4a - 10. \quad 4a + 6 = -4a + 10. \quad \left| 4\left(\frac{1}{2}\right) + 6 \right| - 4\left(\frac{1}{2}\right) = -10$$

$$6 \neq -10$$

$$8a = 4$$

$$8 - 2 \neq -10$$

$$a = \frac{4}{8} = \frac{1}{2}$$

REF: 011106a2