

A.REI.D.11: Absolute Value Equations 1a

- 1 What is the solution set of the equation $|2x - 1| = 9$?
 - 1) $\{ \}$
 - 2) $\{5, -4\}$
 - 3) $\{-5, 4\}$
 - 4) $\{5\}$

- 2 What is the solution set of the equation $|2x + 1| = 9$?
 - 1) $\{-5\}$
 - 2) $\{-4, 5\}$
 - 3) $\{4, -5\}$
 - 4) $\{4\}$

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

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

- 5 What is the solution set for the equation $|3 - 2x| = 5$?
 - 1) $\{-1, 4\}$
 - 2) $\{1, -4\}$
 - 3) $\{-1\}$
 - 4) $\{4\}$

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

- 7 The solution set of the equation $|2x - 1| + 4 = 8$ is
 - 1) $\left\{\frac{5}{2}\right\}$
 - 2) $\left\{\frac{5}{2}, -\frac{3}{2}\right\}$
 - 3) $\left\{-\frac{3}{2}\right\}$
 - 4) $\{ \}$

- 8 What is the solution set of the equation $|x - 6| + 4 = 10$?
 - 1) $\{0, 12\}$
 - 2) $\{-8, 12\}$
 - 3) $\{-12, 0\}$
 - 4) $\{-12, -8\}$

- 9 The solution set of $-|2x - 9| = -11$ is
- 1) $\{ \}$
 - 2) $\{10\}$
 - 3) $\{1, 10\}$
 - 4) $\{-1, 10\}$
- 10 What is the solution set of $|x - 2| = 3x + 10$?
- 1) $\{ \}$
 - 2) $\{-2\}$
 - 3) $\{-6\}$
 - 4) $\{-2, -6\}$
- 11 What is the solution set for the equation $|3x - 1| = x + 5$?
- 1) $\{-1\}$
 - 2) $\{-1, 3\}$
 - 3) $\{3\}$
 - 4) $\{1, -3\}$
- 12 What is the solution set for the equation $2x + |x| = -2$?
- 1) $\{1\}$
 - 2) $\{-2\}$
 - 3) $\{-1\}$
 - 4) $\{ \}$
- 13 What is the solution set of the equation $|4a + 6| - 4a = -10$?
- 1) \emptyset
 - 2) $\{0\}$
 - 3) $\left\{\frac{1}{2}\right\}$
 - 4) $\left\{0, \frac{1}{2}\right\}$
- 14 What is the solution set of the equation $|x^2 - 2x| = 3x - 6$?
- 1) $\{2, \pm 3\}$
 - 2) $\{2\}$
 - 3) $\{\pm 3\}$
 - 4) $\{2, 3\}$

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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: 4

$$|2x - 9| = 11 \quad 2x - 9 = -11$$

$$2x - 9 = 11 \quad 2x = -2$$

$$2x = 20 \quad x = -1$$

$$x = 10$$

REF: 081614a2

10 ANS: 2

$$x - 2 = 3x + 10 \quad -6 \text{ is extraneous. } x - 2 = -3x - 10$$

$$-12 = 2x \quad 4x = -8$$

$$-6 = x \quad x = -2$$

REF: 061513a2

11 ANS: 2

REF: 019624siii

12 ANS: 2

REF: 089923siii

13 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

14 ANS: 4

$$x^2 - 2x = 3x - 6 \quad x^2 - 2x = -3x + 6$$

$$x^2 - 5x + 6 = 0 \quad x^2 + x - 6 = 0$$

$$(x - 3)(x - 2) = 0$$

$$(x + 3)(x - 2) = 0$$

$$x = 3 \quad x = 2$$

$$x = -3 \quad x = 2$$

$x = -3$ is an extraneous solution since $3(-3) - 6 = -15$.

REF: 080616b