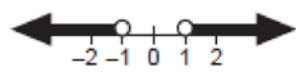

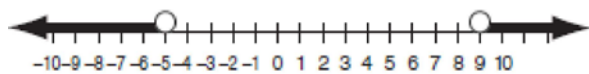


A2.A.1: Absolute Value Inequalities 4: Solve absolute value equations and inequalities involving linear expressions in one variable

- 1 What is the solution of the inequality $|2x - 5| \leq 11$?
- 2 Solve $|2x - 3| > 5$ algebraically.
- 3 Solve $|-4x + 5| < 13$ algebraically for x .
- 4 Solve algebraically for x : $|3x - 5| - x < 17$
- 5 The inequality $|1.5C - 24| \leq 30$ represents the range of monthly average temperatures, C , in degrees Celsius, for Toledo, Ohio. Solve for C .
- 6 A depth finder shows that the water in a certain place is 620 feet deep. The difference between d , the actual depth of the water, and the reading is $|d - 620|$ and must be less than or equal to $0.05d$. Find the minimum and maximum values of d , to the nearest tenth of a foot.
- 7 The heights, h , of the students in the chorus at Central Middle School satisfy the inequality $\left| \frac{h - 57.5}{2} \right| \leq 3.25$, when h is measured in inches. Determine the interval in which these heights lie and express your answer to the nearest tenth of a foot. [Only an algebraic solution can receive full credit.]
- 8 Which equation states that the temperature, t , in a room is less than 3° from 68° ?
 - 1) $|3 - t| < 68$
 - 2) $|3 + t| < 68$
 - 3) $|68 - t| < 3$
 - 4) $|68 + t| < 3$
- 9 The solution set of $|3x + 2| < 1$ contains
 - 1) only negative real numbers
 - 2) only positive real numbers
 - 3) both positive and negative real numbers
 - 4) no real numbers
- 10 If $|2x + 3| < 1$, then the solution set contains
 - 1) only negative real numbers
 - 2) only positive real numbers
 - 3) both positive and negative real numbers
 - 4) no real numbers
- 11 Which value of a does not satisfy the inequality $|a| > 2a - 3$?
 - 1) -1
 - 2) 0
 - 3) 3
 - 4) -5
- 12 The inequality $-3 < x < 7$ is the solution of
 - 1) $|x - 2| > 5$
 - 2) $|x - 2| < 5$
 - 3) $|x + 2| > 5$
 - 4) $|x + 2| < 5$
- 13 Which inequality is represented by the accompanying graph?
 
 - 1) $|x| > 1$
 - 2) $|x| \geq 1$
 - 3) $|x| < 1$
 - 4) $|x| \leq 1$
- 14 Which inequality is represented by the accompanying graph?
 
 - 1) $|x + 2| > 5$
 - 2) $|x + 3| \geq 2$
 - 3) $|x - 1| \leq 5$
 - 4) $|x - 5| \geq 2$
- 15 The solution set of which inequality is represented by the accompanying graph?
 
 - 1) $|x - 2| > 7$
 - 2) $|x - 2| < 7$
 - 3) $|2 - x| > -7$
 - 4) $|2 - x| < -7$

A2.A.1: Absolute Value Inequalities 4: Solve absolute value equations and inequalities involving linear expressions in one variable

Answer Section

1 ANS:

$$-3 \leq x \leq 8$$

REF: 010625b

2 ANS:

$$2x - 3 > 5 \text{ or } 2x - 3 < -5$$

$$2x > 8 \qquad 2x < -2$$

$$x > 4 \qquad x < -1$$

REF: 061430a2

3 ANS:

$$-4x + 5 < 13 \quad -4x + 5 > -13 \quad -2 < x < 4.5$$

$$-4x < 8 \qquad -4x > -18$$

$$x > -2 \qquad x < 4.5$$

REF: 011432a2

4 ANS:

$$|3x - 5| < x + 17 \quad 3x - 5 < x + 17 \text{ and } 3x - 5 > -x - 17 \quad -3 < x < 11$$

$$2x < 22 \qquad 4x > -12$$

$$x < 11 \qquad x > -3$$

REF: 081538a2

5 ANS:

$$-4 \leq C \leq 36$$

REF: 010326b

6 ANS:

$$590.5, 652.6$$

REF: 080427b

7 ANS:

$$4.3-5.3$$

REF: 010531b

8 ANS: 3

REF: 060107b

9 ANS: 1

REF: 080102b

10 ANS: 1

REF: 019926siii

11 ANS: 3

REF: 060808b

12 ANS: 2

REF: 069426siii

13 ANS: 1

REF: 080806b

14	ANS: 2	REF: 060707b
15	ANS: 1	REF: 060617b