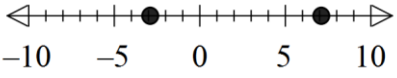
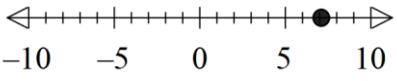
Algebra I Unit 4: One-Variable Equations and Inequalities

1. Which graph represents the solution(s) to $2|x-3|=8$?

(A) 

(B) 

(C) 

(D) None of these

2. How is solving an absolute value equation different from solving a linear equation?

(A) Solutions to absolute value equations are always positive.
(B) To solve an absolute value equation, split it into two separate equations first.
(C) To solve an absolute value equation, switch the sign inside the absolute value.
(D) None of these

3. What's the solution set to $|x-4|+2=2x$?

(A) $\{-2\,,2\}$
(B) $\{-2\}$
(C) $\{2\}$
(D) No solution

4. What's the value of y in the equation $2x+3y=7$?

(A) $y=\frac{2x-7}{3}$
(B) $y=\frac{5x-3}{2}$
(C) $y=\frac{-2x+7}{3}$
(D) It can't be determined

5. Which of the following is **not** part of solving an equation with one variable?

(A) Finding where the equation crosses the x-axis
(B) Finding where the equation crosses the y-axis
(C) Getting the variable on one side and the constant on the other
(D) Always performing the same operation on both sides of the equal sign

6. What's the value of x in the equation $4x + 5 = 3x + 7$?

(A) $x = 1$
(B) $x = 2$
(C) $x = \frac{1}{7}$
(D) $x = \frac{12}{7}$

7. Which of these equations is equivalent to $3x - 4 = 7x + 5$?

(A) $-4 = 10x + 5$
(B) $4 = 4x + 5$
(C) $4 = 10x + 5$
(D) $-4 = 4x + 5$

8. Logical deduction involves which of the following?

(A) Performing the same operation to both sides of an equation
(B) Moving from one true statement to another when solving an equation
(C) Turning an equation into an equivalent equation
(D) All of the above

9. Why is it important to perform the same operation to both sides of an equation?

(A) It turns the equation into an equivalent equation.
(B) It keeps the equation as simple as possible.
(C) It makes the equation as small as possible.
(D) None of the above

10. What's the value of x in the equation $3^x = 3^{2x-5}$?

(A) $x = 5$
(B) $x = 2$
(C) $x = -3$
(D) $x = 0$

11. For exponential equations where b > 0, if $b^x = b^y$, then which of the following is true?

(A) $x = 1$
(B) $bx = by$
(C) $x = y$
(D) $x = 0$

12. A quadratic equation must contain which of the following?

(A) A variable multiplied by 2
(B) 2 as the highest exponent on a variable
(C) A variable with an exponent of 2
(D) A number squared

13. What's the solution to $x^2 = 25$?

(A) $\{5\}$
(B) $\{-5\}$
(C) $\{-5, 5\}$
(D) No solution

14. What are the possible values of x in $3x^2 - 27 = 0$?

(A) $\{3\}$
(B) $\{-3, 3\}$
(C) $\{9\}$
(D) No solution

15. Which of the following is **not** a reason to split a factored equation into two separate equations?

(A) When two factors multiply to zero, one of them must be zero
(B) To get the equation into the form $(x + a)(x + b) = 0$
(C) To turn terms into factors which makes it easier to solve
(D) When there's an x^2 in the equation

16. In the following step while solving by completing the square, what would the value of a equal in $x^2 + 6x + a = 7 + a$ and what would the factored form look like?

(A) $a = 3$; $(x + 3)^2 = 10$
(B) $a = 9$; $(x + 3)^2 = 16$
(C) $a = 6$; $(x + 6)^2 = 13$
(D) $a = 6$; $(x + 3)^2 = 13$

17. What are the values of a, b and c in $3x^2 - x + 5 = 0$?

(A) $a = 3, b = x, c = 5$
(B) $a = 3, b = -x, c = 5$
(C) $a = 3, b = 1, c = 5$
(D) $a = 3, b = -1, c = 5$

18. How many real solutions does a quadratic equation have if the discriminant is 0?

(A) 0
(B) 1
(C) 2
(D) None of the above

19. When solving an inequality, how often is an exact solution obtained?

(A) Always
(B) Never
(C) Sometimes
(D) There's no way to tell

20. What's the solution to the inequality $7x - 3 \leq -17$?

(A) $x \leq -2$

(B) $x \geq -2$
(C) $x \leq 2$
(D) $x \geq 2$

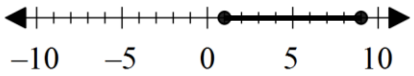
21. A cookie manufacturer wants to fill bags with 50 cookies per bag. Each bag can be off by up to 3 cookies. Which inequality represents the possible number of cookies that can be in each bag?

(A) $|x - 50| \geq 3$
(B) $|x - 50| \leq 3$
(C) $|x + 50| \geq 3$
(D) $|x + 50| \leq 3$

22. Why does $|x| < 3$ become $-3 < x < 3$?

(A) The solution is everything less than 3 away from 0.
(B) An absolute value is always a positive number.
(C) An absolute value is always a negative number.
(D) The solution is everything more than 3 away from 0.

23. Which absolute value inequality does this graph represent?



(A) $|x + 1| \leq 9$
(B) $|x - 1| \leq 9$
(C) $|x + 5| \leq 4$
(D) $|x - 5| \leq 4$