Name: _____

Topic 1: Real Numbers (Equations and Inequalities)

Questions 1-12. Solve the equation. If the equation is an identity or if it has no solution, state that fact.

1) 21y = 56 +7y

2) $7 = \frac{n}{2} - 1$

3) 360 + 36z = 30z

4) $\frac{3}{4}w + 13 = 7$

5) 2c – (c – 8) = 46 – c

6) $\frac{3-x}{5} = 6$

7) 5(x + 1) – 3(x + 1) = 14

8) 5(y + 2) = 6 + 3(2y – 1)

9) 3(x + 2) = 3x + 2 + 4

10) 14n – 11n + 15 = 0

11) -7 – 4(2x – 1) = 21

12) $|x| + 8 = 12$

Questions 13-15. Define a variable, write an equation, and solve for each.

13) Find three consecutive integers whose sum is -66.

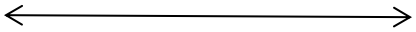
14) Find four consecutive odd integers if the sum is 48.

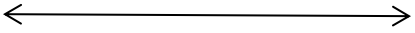
15) Find four consecutive even integers if twice the largest is 20 less than the smallest.

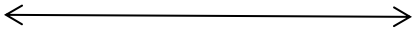
Questions 16-19. Solve for the indicated variable.

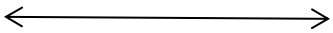
16) $y = ax - b$ *for x* *17)* $PV = nRT$ *for R* 18) $\frac{x-y}{3} = 5$ for y

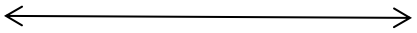
Questions 19-24. Solve the inequality. Graph your solution on the given line.

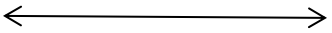
19. n – 2 ≥ 3 

20. $2 + \frac{x}{-3} < 5$ 

21. 2x – 3 < x + 5 

22. 5(2 – t) > 4 (3 – t) 

23. $-3 < 2x + 1 \leq 5$ 

24. $-5x > 20$ *or* $10 + \frac{x}{2} > 15$ 

Questions 25-27, solve each equation.

25. $|x| + 4 = 8$ 26. $-2|x| = -14$ 27. $|2x - 6| = 8$

Question 28-30, solve and graph each inequality.

28. $|5x - 2| \geq 8$ **29.** $\left|\frac{x}{2} - 1\right| < 3$ **30.** $-2|2 - 3x| > 16$