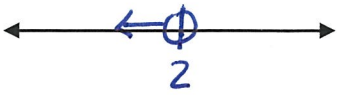
Algebra 1
Unit 3 – Study Guide

Name: KEY

Date: _____

Graph the simple inequalities

1. Graph $x < 2$



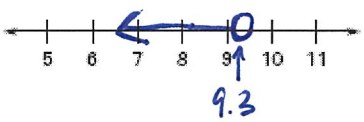
2. Graph $x \geq -1$

Solve the inequality. Graph your solution.

3. $6 > y - 3.3$

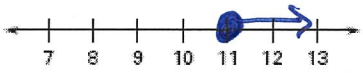
$9.3 > y$

$y < 9.3$



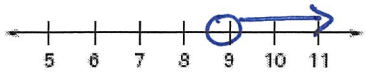
4. $z - 7 \geq 4$

$z \geq 11$



5. $x + 5 > 14$

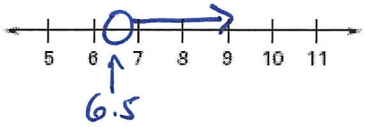
$x > 9$



6. $8 < m + 1.5$

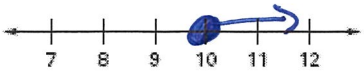
$6.5 < m$

$m > 6.5$



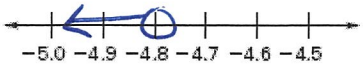
7. $\frac{n}{-5} \leq -2$

$n \geq 10$



8. $\frac{w}{6} < -0.8$

$w < -4.8$



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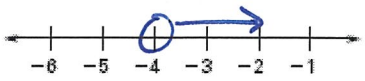
9. $-9k < 36$

$k > -4$



10. $10n \geq 140$

$n \geq 14$

11. Suppose that you have a budget of $50 and each pizza costs $8. Write and solve an inequality to find the possible numbers of pizzas that you can buy for the math study party tonight.
(P.S. You're invited; just bring money!)

$8x \leq 50$

$x \leq 6.25$

- so, up to 6 pizzas

Solve the inequality. Graph your solution.

12. $4x + 9 < 25$

$-9 \quad -9$

$4x < 16$

$x < 4$

13. $1 - 3x \geq -14$

$-3x \geq -15$

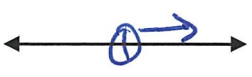
$x \leq 5$

14. $5(-3x - 4) < 5$

$-15x - 20 < 5$

$-15x < 25$

$x > -\frac{5}{3}$



15. $-\frac{1}{2}(-4x + 10) \geq -1$

$2x - 5 \geq -1$

$2x \geq 4$

$x \geq 2$

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16. $5x - 7 \leq 6x$

$-x \leq 7$

$x \geq -7$

17. $3 - x > x - 9$

$-2x > -12$

$x < 6$

Solve the inequality, if possible.

18. $18 + 4w \leq \frac{1}{2}(8w + 36)$

All real #'s

19. $-2(3z - 1) < 1 - 6z$

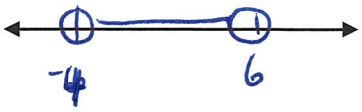
No solutions

Solve the inequality. Then graph the solution.

20. $-1 < 2x + 7 < 19$

$-8 < 2x < 12$

$-4 < x < 6$



21. $-8 \leq -x - 5 \leq 6$

$-3 \leq -x \leq 11$

$3 \geq x \geq -11$

$-11 \leq x \leq 3$

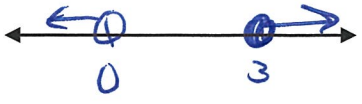
22. $x + 4 \leq 9$ *or* $x - 3 \geq 7$

$x \leq 5$ $x \geq 10$

23. $3x - 1 < -1$ *or* $2x + 5 \geq 11$

$3x < 0$ $2x \geq 6$

$x < 0$ $x \geq 3$



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Solve the equation. Check for extraneous solutions.

24. $|x| = 5$

$x = 5$ $x = -5$

25. $|x - 3| = 10$

$x - 3 = 10$ $x - 3 = -10$

$x = 13$ $x = -7$

26. $|x + 2| - 1 = 7$

$|x+2| = 8$

$x + 2 = 8$ $x + 2 = -8$

$x = 6$ $x = -10$

27. $2|3x - 2| + 1 = 13$

$|3x-2| = 6$

$3x - 2 = 6$ $3x - 2 = -6$

$3x = 8$ $3x = -4$

$x = 8/3$ $x = -4/3$

28. $|2x + 5| = 3x$

$2x + 5 = 3x$ $2x + 5 = -3x$

$-2x$ $-2x$ $5 = -5x$

$5 = x$ $-1 = x$

29. $|4x - 1| = 2x + 9$

$4x - 1 = 2x + 9$ $4x - 1 = -(2x+$

$2x = 10$ $4x - 1 = -2x -$

$x = 5$ $6x = -8$

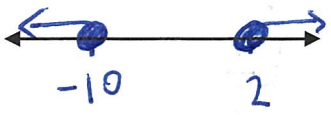
$x = -4/3$

Solve the inequality. Then graph the solution.

30. $|x + 4| \geq 6$

$x + 4 \geq 6$ $x + 4 \leq -6$

$x \geq 2$ $x \leq -10$

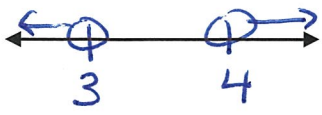


31. $|2x - 7| > 1$

$2x - 7 > 1$ $2x - 7 < -1$

$2x > 8$ $2x < 6$

$x > 4$ $x < 3$

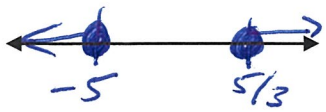


32. $|3x + 5| \geq 10$

$3x + 5 \geq 10$ $3x + 5 \leq -10$

$3x \geq 5$ $3x \leq -15$

$x \geq 5/3$ $x \leq -5$



33. $|x + 2| < 6$

$x + 2 < 6$ $x + 2 > -6$

$x < 4$ $x > -8$

34. $|2x + 1| \leq 9$

$2x + 1 \leq 9$ $2x + 1 \geq -9$

$2x \leq 8$ $2x \geq -10$

$x \leq 4$ $x \geq -5$

35. $|7 - x| \leq 4$

$7 - x \leq 4$ $7 - x \geq -4$

$-x \leq -3$ $-x \geq -11$

$x \geq 3$ $x \leq 11$