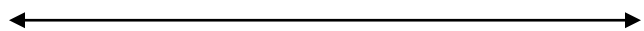Name _____

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Solve each problem using a system of equations.

1. Emily has 180 M&Ms, some plain and some peanut. If there are 32 more plain M&Ms than peanut M&Ms, how many peanut M&Ms does she have?

2. The crib for Mrs. Matthew's baby is a rectangle. This rectangle has a perimeter of 126 inches. Its length is 5 in more than its width. Find the dimensions of the baby's crib.

3. Chris and Paul sold tickets to the NCAA Regional Baseball Tournament. Chair back seats were $5 each while seats in Aggie Alley cost $2 each. If only 210 people attended and they paid a total of $660 for tickets, how many people bought chair back seats?
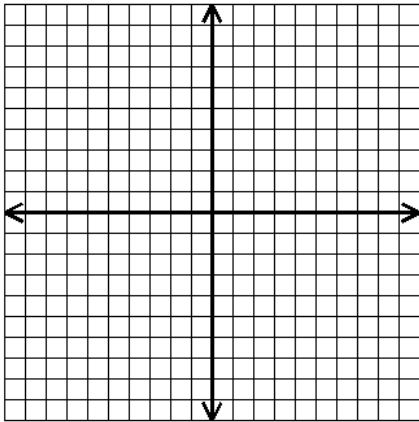
Solve the inequality and graph it on the number line.

4. $4(x + 1) - 2(x - 1) < 3 - x$

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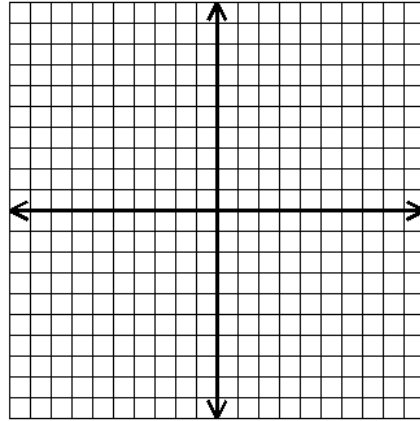Date _____ Period _____

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Graph the inequalities below and shade the solution.

  5. $y > -3x + 1$ 6. $y \leq 2x + 7$

7. Mr. Salgado needs to get his car repaired, but cannot spend more than $225 for repairs. His mechanic told him that he part needed to fix his car would cost $78 and the labor would be an additional $35 per hour. How many hours can the mechanic work and stay within Mr. Salgado's budget?

Simplify the following polynomials:

  8. $(x^2 + 6x – 5) + (-x^2 – 3x – 1) =$ _____

  9. $(a^2 – 3a – 5) - (-a^2 – 7a + 4) =$ _____

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Simplify the following problems.

10. $(2x^4)(5x^3)$

11. $(4x^7)(2x^4) - (6x^6)(5x^5)$
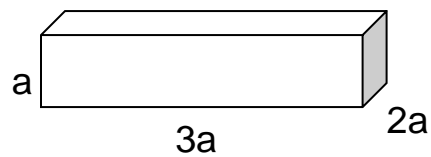
12. $(x + 2)(x - 3)$

13. $(3x - 2)(2x + 3)$

14. $4t(2t^2 - t - 5)$

15. $\dfrac{32a^2bc^3}{20abc}$

16. $(-4c^3)^3$

17. $(4x^2y)^2(-3xy^2)^3$

18. Find the volume of this solid.

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FACTOR COMPLETELY. Find the solutions.

19. $18x - 12y + 36$

20. $64x^2 - 25$

21. $x^2 + 20x + 36$

22. $r^2 + 7r - 18$

23. $3p^2 + 7p - 6$

24. $3p^2 + 7p - 6$

Solve using the **Quadratic Formula.** Round your answers to the nearest tenth.

25. $6x^2 - 5x - 2 = 0$

26. $x^2 + 8x + 3 = 0$

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Write the equation for the parabola: $y = x^2$

27. Shifts up 4 units.

28. Shifts down 2 units and is reflected.

29. Tiger Woods hits a golf ball into the air The equation that describes the path of the ball is $h = 55t - 5t^2$. Answer the folowing questions using the information given.

    A. How high is the ball after **2 seconds**?

    B. When will it **first** reach 140 meters?

    C. When will it hit the **ground**?

30. The area of a rectangular room is given by the equation $w^2 - 7w = 18$ where **w** is the width of the room. Find the width of the room.

31. The area of a rectangular piece of cardboard is represented by the equation **L(3L – 7) = 20** where **L** is the length of the room. Find the length of the room.

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32. At which points does the graph of $f(x) = x^2 + 2x - 48$ intersect the x-axis?

33. For the function $y = 4x^2 + 3x - 1$, what is the value of y when $x = -3$?

34. What is the vertex of $y = 4x^2 + 3x - 1$?

Linear Transformations.

35. Given the equation $y = 5x - 3$, what would be the **slope** of a parallel line?'

36. Write the equation of the **line y = 2x – 3** that has been **shifted:**

   A. Up 3

   B. Down 1

37. Describe the change in the graph $y = -5x$ when the equation is changed to $y = -5x - 4$.

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Write the equation of a line given the following information.

38. The slope is 4 and crosses through the point (-2,11)

39. 2 points (3,-1) and (-2,9).

40. In a random survey of 40 algebra 1 students at A & M consolidated HS, 30 said they loved their math class. Using this information, what is the best prediction of the number of students who love their Algebra 1 class out of 340 students?

41. Two lines have the equations 2x – y = 1
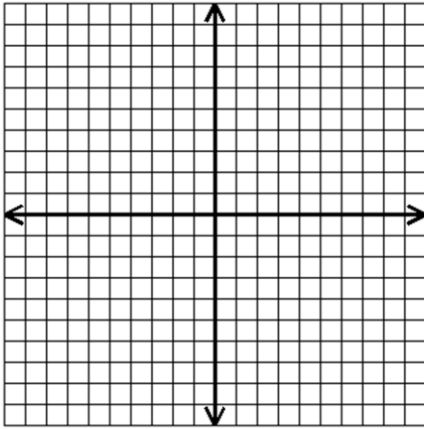   3x = y – 6

   At what point do they intersect?

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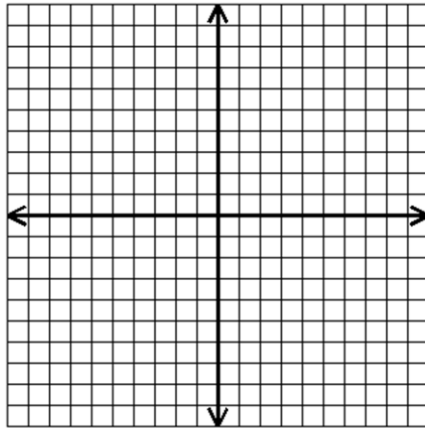
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42. SOLVE: $2(x + 3) + 3(x - 5) = 8(x - 6)$

Graph each of the linear equations.

43. $y = -2x + 5$

44. $y = 4$

45. $x = 6$