Semester 1 CHAT Algebra 1 Extra Credit

You MUST show all work to get credit for a correct answer. Circle all answers.

This packet is worth:

10 extra credit points for scores of 50% - 65%
15 extra credit points for scores of 66% - 80%
20 extra credit points for scores of 81% - 100%

Give examples of the following properties:

Additive Inverse Property _____

Identity Property of Multiplication _____ Inverse Property of Multiplication _____

Commutative Property _____ Identity Property of Addition _____

Distributive Property _____ Associative Property _____

1.   Solve $11(4x + 3) = 19.$

2.   a.   Changing the order of the numbers in what 2 operations does not change the answer?

     b.   Changing the order of the numbers in what 2 operations changes the answer?

3. $-3 + 7 - 8 + 9 - (-4) =$

4. $\dfrac{m^5}{m^{-2}} =$

5. **What are the reciprocals of ?** $-7, \ -2\dfrac{1}{8}, \ \text{and } 0$

6. **What is the multiplicative inverse of** $-\dfrac{1}{9}$ **?**

7. **Solve for x.** $\ |3x-4|=24$

8. **Solve for h.** $\ 11-|-3h-9|=-8$

9. **Solve for** *x* **in** $\ 7x-4(4x-2)=15x.$

10. Solve $-5(3-6x)=7-6(6-3x)$

11. Solve $5[4x-2(x-6)]+5=20$

12. Crasher rented a quadrunner for his summer vacation. The total *cost (c)* of renting the quad for *n* days is $c=150+80n$. If he paid $1030 to rent the quadrunner, how many days was it rented?

13. Allyce solved her homework problem in algebra below. She made 2 mistakes. What mistakes did she make?

$$8(x-9)=2x+18$$

Step 1: $8x-89=2x+18$

Step 2: $10x=18+89$

Step 3: $10x=107$

Step 4: $x=\dfrac{107}{10}$

14. A 300 foot long sub sandwich is cut into 3 pieces. The first piece is half as long as the second piece. The third piece is $4\frac{1}{2}$ times as long as the second piece of the sandwich. How long is each piece of the sandwich? (This is a 5 step word problem.)

15. Walter went to fair. The cost for admission is $4.00 and it costs $1.50 per ride ticket. If he has $50.00 and spends $10.00 on food, how many ride tickets can she buy? Write an equation first. (This is not a 5 step problem.)

16. Solve the inequality $9 - 7x \geq 58 + 8x$

17. The sides of a triangle have lengths of 3m, 2m+1, and 13 inches. If the perimeter is 64 inches, what is the length of each side? Draw a diagram first. (This is not a 5 step problem.)

18. Mark is 2 years older than Zack. Wilbur is twice as old as Mark. Freida is twice as old as Wilbur. The sum of their ages is 38. How old is each person? (This is a 5 step word problem.)
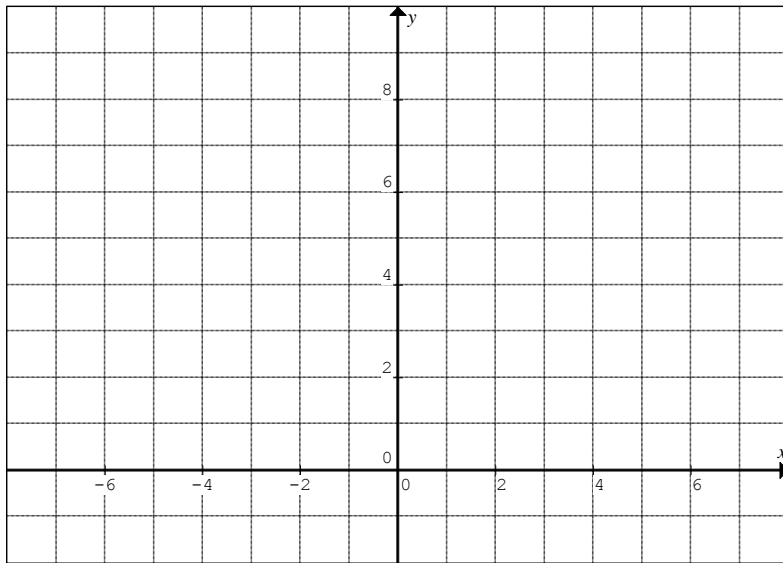
20. Solve and graph $2x + 7 < 3 \; and -3x < 9$.

21.   Solve and graph $|2x + 6| > 12$

22.   If y varies directly with x, and x=6 when y=42, find x when y = 84.

23.   Find the prime factorization of 360.
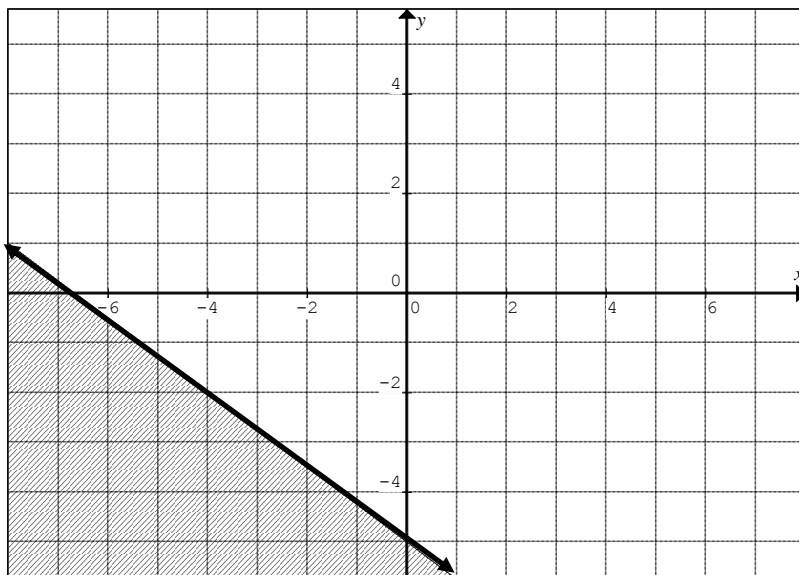
25.   Solve the following equation. $3k - 9(k - 4) = 106$

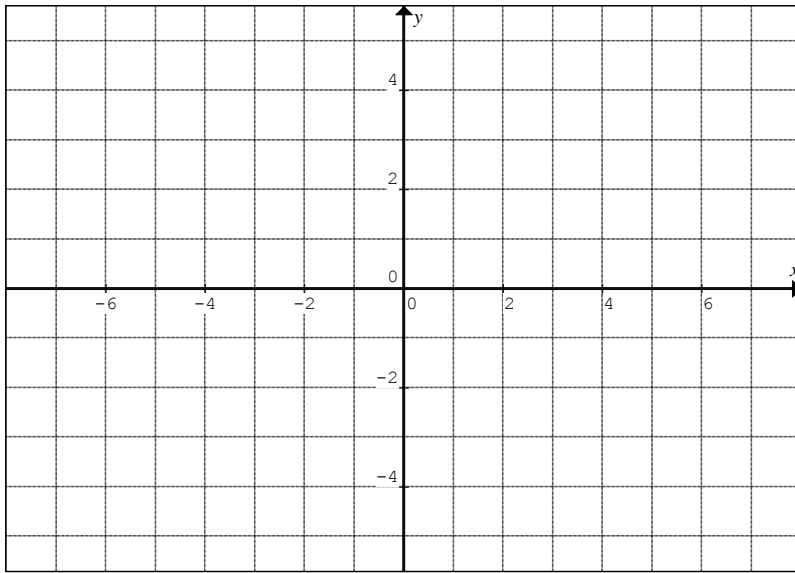**26.** **Change the equation from Standard Form to Slope-Intercept Form, the graph the equation.**
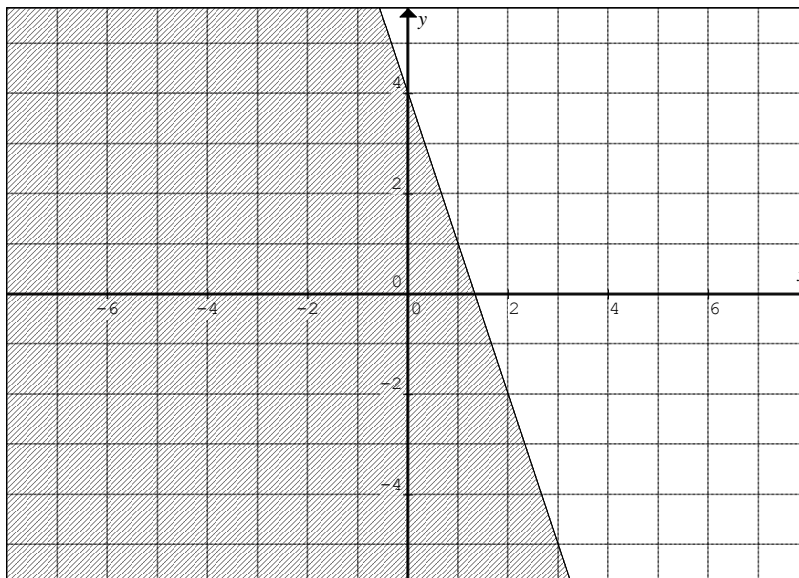
$$8x + 14y = 42$$

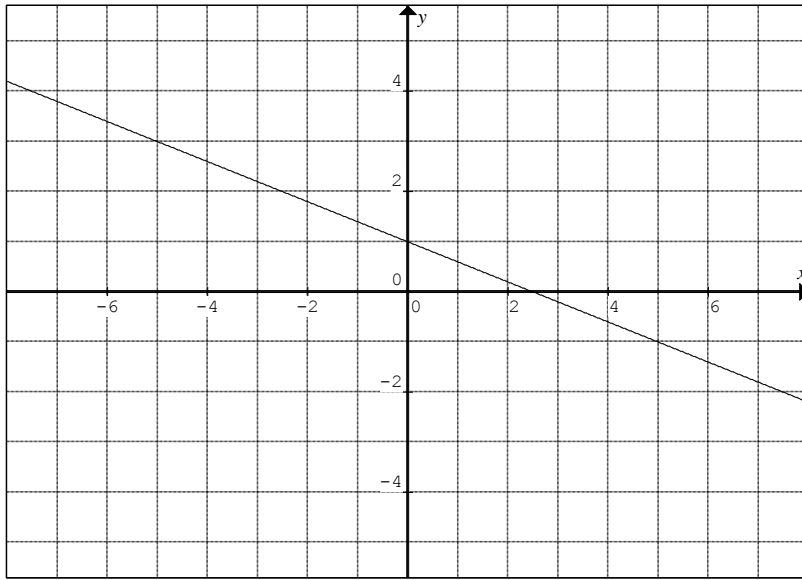27. What is the inequality of the graph below?

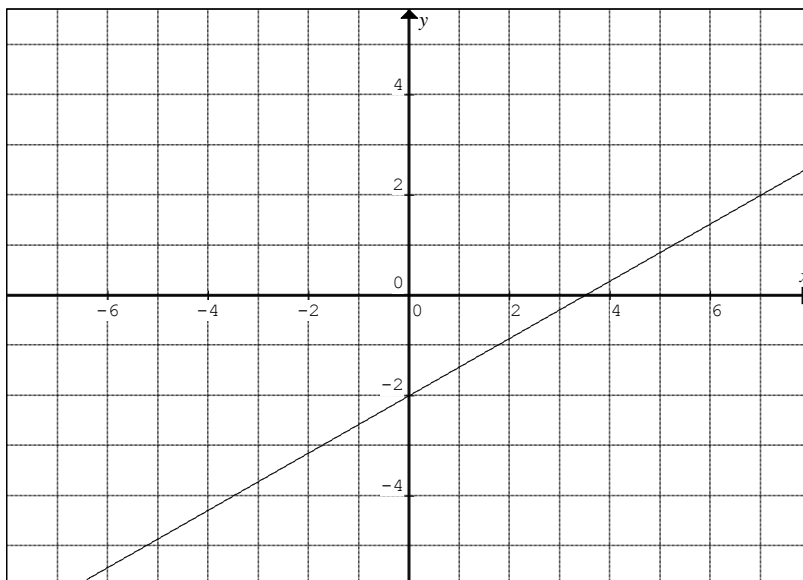28. Draw the graph of the inequality $y > -\dfrac{4}{5}x + 2$

29. What is the inequality that represents the graph below?

30.   What is the equation of the graph below in Slope-Intercept Form?

31.   What is the equation of the graph below in slope-intercept form?

32.   What is the x-intercept of the line represented by the equation $-4x - 7y = 13$?
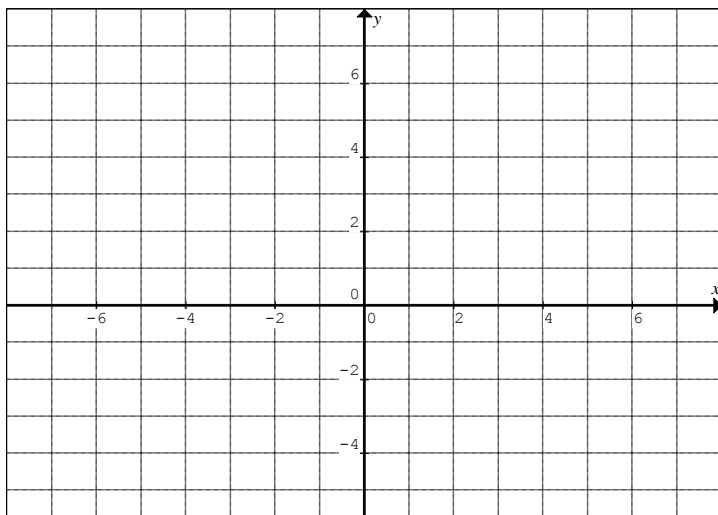
33.   Find 4 points on the line defined by $5x-8y=16$. Use a xy-table.

34.   What is the equation of the line that passes through the point (5, 4) with a slope of $\frac{3}{4}$?

35.   Find the slope of the line that includes the points (-2, 5) and (7, 9).

36.   Solve the equation $\frac{1}{4}x + \frac{2}{3} = 5$.

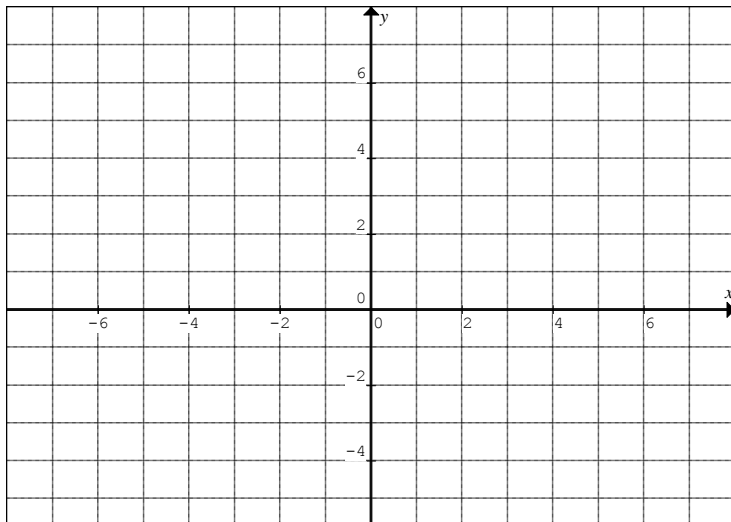**37.   Graph the line** $4x - 3y = 9$.

38. Are the lines represented by the equations below parallel, perpendicular, or identical?

$$-3x + 5y = -5 \qquad 5x + 3y = 6$$

39. Find a line parallel to $y = \dfrac{7}{2}x + 2$ that has y-intercept $(0, 8)$.

40. Graph the system of inequalities.

$$\begin{cases} 4x + 2y > 8 \\ 3x + 3y \leq 9 \end{cases}$$

41.   What is the solution to the linear system below?

$$\begin{cases} y = -\frac{2}{3}x + 2 \\ -4x - 6y = -12 \end{cases}$$
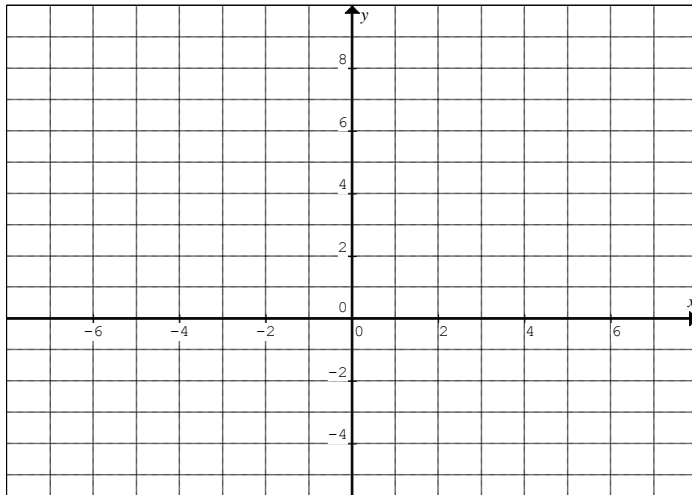
42.   Find the solution to the system of linear equations below.

$$\begin{cases} x + 3y = 7 \\ x + 2y = 10 \end{cases}$$

43. Goldberg collects both $10 and $20 gold coins. He has a total of 33 coins with a face value of $350. Find how many of each type of coin he has. Solve this using 1 variable. (This is a 5 step word problem.)

44. Solve the linear system by any method.

$$\begin{cases} 2y = -4x + 6 \\ 10y = -20x + 40 \end{cases}$$

45. To raise money, the family made and sold cupcakes. Small cupcakes were 50 cents each, and the large fancy cupcakes sold for $1.00 each. If they sold 500 cupcakes and made $350, how many of each type did they sell? Solve this using 2 variables. (This is a 5 step word problem.)

46. Solve the system by any method.

$$\begin{cases} 4x + 2y = -2 \\ 8x + 2y = 6 \end{cases}$$

47.   Simplify $\dfrac{7x^3 y^7}{47x^5 y^2}$.

48. $(9x^2 - 3x - 5) - (7x^2 + 5x - 3) =$

49.   Subtract $4x^2 - 2x$ from $3x^2 - 8x$.

50.   The Funkee Frutee smoothee company mixed some 10% mango juice with some 20% mango juice to get 100
       gallons of 14% mango juice. How much of each mango juice did they use? (5 steps)

51. Two trains left from the same station going in opposite directions. If the old locomotive went 65 miles per hour and the bullet train went 200 miles per hour, how many hours would it take for them to be 1855 miles apart? (This is a 5 step problem.)

52. Ben wanted to make some cherry coke that is 40% cherry flavoring by adding 100% pure cherry flavoring to some cherry coke that is 20% cherry flavoring to get 50 gallons of the mixture. How much of each should he add to get the 20% mixture?

53.   Is {(2, 6), (3, 7), (4,8), (0,6)} a function? Why or why not?

54.   Draw a graph of a relation that is <u>not</u> a function.
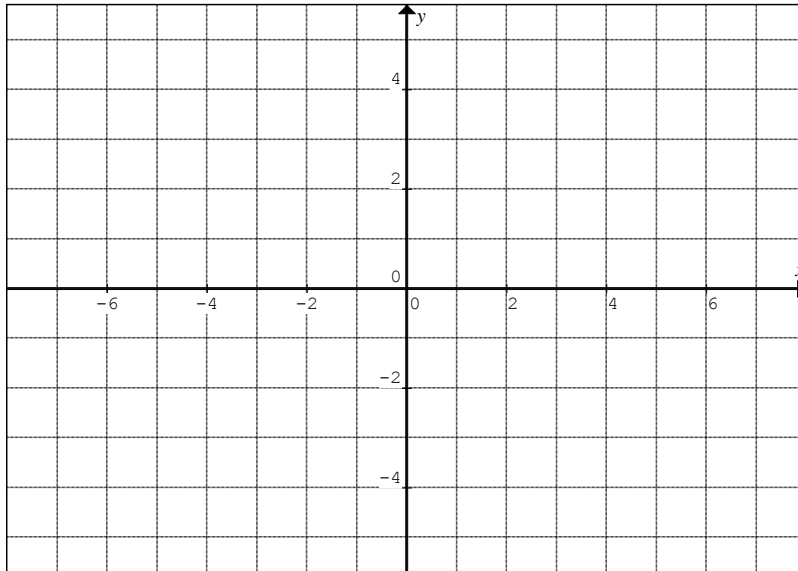
55.   a.   What is the domain of a function?

       b.   What is the range of a function?

56.   What test on a graph can you use to determine if the graph is a function?