Algebra 1: Chapter 1 and 2 **Name** _____

Evaluate the power.

1. 3^2	2. 2^4	3. 1^5	4. x^2 when $x = 5$	5. y^3 when $y = 3$	6. m^8 when $m = 1$

Write algebraic expressions and algebraic equations. Use x as the variable.

7. the quotient of the cube of a number and 12	8. 10 less a number	9. 10 less than a number
10. a number increased by 34	11.a **equals** the cube of the difference of x and y	12.s **is** 5 more than the product of a and b

Use the order of operations to evaluate the following.

13. $55 - 10 \div 2 + 43$	14. $3[7(14 - 2^3)+15] - 18$	15. $9 + [15 \div (3 + 2)] \div 3$

Evaluate each expression!

16. $2w + 4t\ (n + v)$ if $w = 2$, $v = 4$, $n = 6$, and $t = 8$

17. $ab + 8b \text{ if } a = 4 \text{ and } b = \frac{1}{2}$

Match the verbal sentence with its equation or inequality.

18. The difference of 4 and *a* number *n* is equal to 14. **A**. $n - 4 \leq 14$

19. The difference of *a* number *n* and 4 is no more than 14. **B.** $n - 14 \leq 4$

20. The difference of 4 and *a* number *n* is at least 14. **C.** $4 - n = 14$

21. The difference of *a* number *n* and 14 is at most 4. **D.** $4 - n \geq 14$

Use the formula D=rt to solve the following word problems.

22. Andy drove 120 miles at 50 mph. How many **hours** did he drive?

23. Katelyn drove 62 mph for 2 ½ hrs. How **far** did she drive?

24. The collection of all output values is called the _____of a function.

25. The collection of all input values is called the _____ of a function.

Identify the domain and range of the function.

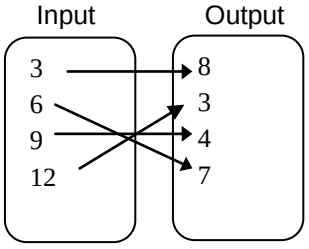
26.

Input	Output
1	8
3	7
5	6
7	5

Domain: _____

Range: _____

27.



Domain: _____

Range: _____

What is a relation?_____ What is a function?_____

Determine if each of the relations is a function. Write YES or NO and explain your reasoning..

28. { (2 , 2) , (1 , 2) , (0 , 1) }

YES **NO** _____

29.

x	y
0	1
-1	2
-1	0

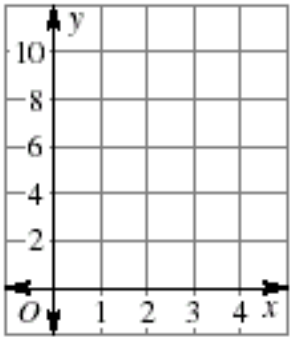
YES **NO**

_____

Graph the function using a table given the domain.

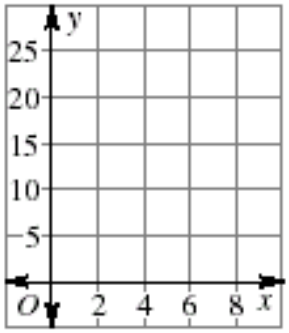
30. $y = x + 5$ Domain: 0, 1, 2, 3

Domain	Range



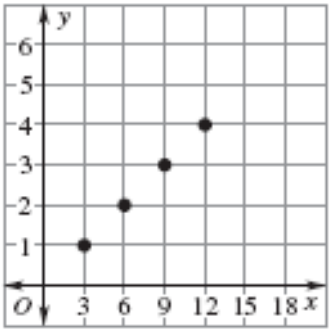
31. $y = 3x$ Domain: 1, 3, 5, 7

Domain	Range

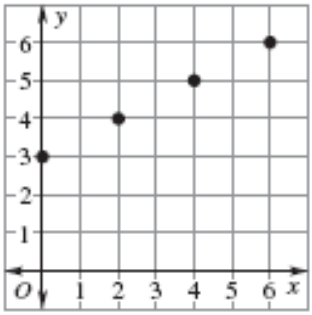


Write a rule for the function represented by the graph.

32.



33.



34.

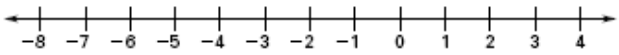
Input, x	1	3	5	7
Output, y	2	6	10	14

35.

Input, x	12	15	18	21
Output, y	4	5	6	7

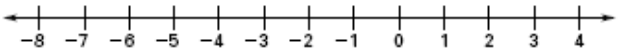
Graph the following numbers on the number line and then order the numbers from least to greatest.

36. $-1, -\frac{2}{5}, 2, 0, \frac{1}{10}$



_____

37. $-3, 0, 4, -\frac{5}{4}, \frac{3}{2}, -1$



_____

Replace each _____ with <, >, or = to make a sentence true.

38. $\frac{-3}{4}$ _____ $\frac{-5}{7}$

39. –1.234 _____ –1.235

40. $\frac{3}{5}$ _____ $\frac{5}{6}$

Evaluate the expression when x = – 2.5.

41. $-x$

42. $|x| + 3$

43. $|x| - 4$

Find the sum or difference.

44. –13 + 7

45. –7 + (–9)

46. 7.9 + (–3.6)

47. –2.4 + (–3.3)

48. 15 – 3

49. –5 – (–6)

50. $\frac{1}{2} - \frac{7}{10}$

51. $7\frac{4}{5} + -2\frac{1}{4}$

Find the product or quotient.

52. $-6(-12)$	53. $3 \cdot -4$	54. $\frac{5}{9}\left(-\frac{3}{4}\right)$	55. $-\frac{2}{3}(18)\left(-\frac{1}{4}\right)$
56. $\left(-\frac{2}{3}\right) \div 6$	57. $-4 \div \left(-\frac{2}{9}\right)$	58. $\frac{\frac{3}{4}}{-6}$	59. $\frac{8r - 12s}{-4}$

Write an algebraic expression for the following <u>inequalities</u>

60. a is at <u>most</u> 25	***61.*** a is less than or equal to 6	62. a is at least 4

Approximate the square root to the nearest integer.

63. $\sqrt{35}$	64. $-\sqrt{150}$	65. $\sqrt{18}$

Evaluate the expression for the given value of x.

66. $2-\sqrt{x}$ *when* $x = 25$	67. $4\sqrt{x}+9$ *when* $x = 1$

Use the distributive property to write an equivalent expression.

68. 3(x + 5)	69. $(x + 2)6$	70. –3(x – 1)

Simplify the expression.

71. 8x + (–12x)	72. 3 + 6x + 1	73. 2(x + 4) + 7x

Algebra I CP: Chapter 3 Name_____

Solve the following equations.

1. $a-17=-10$

2. $41=52+m$

3. $c-2.4=1.8$

4. $-\frac{3}{4}d=12$

5. $\frac{1}{3}a=\frac{8}{5}$

6. $-1.4a=2.8$

7. $9c-5=13$

8. $\frac{w}{7}-2=9$

9. $-9=11m-8m$

10. $0.4m-3=-1$

11. $8-\frac{x}{4}=11$

12. $38=26x-7x$

13. $7(d-5)+12=5$

14. $15m+4-9m=-32$

15. $19a-3(a-6)=66$

16. $\frac{1}{4}(x-8)=7$

17. $6(4r+2)=7(3r-6)$

18. $15=4.3n-2.1(n-4)$

19. $\frac{1}{2}(6w+2)=-w$

20. $\frac{t}{3}+\frac{t}{2}=15$

21. $8(y-5)=6y-18$

22. $8b+11-3b=2b+2$

23. $16p-4=4(2p-3)$

24. $10d-6=4d-15-3d$

25. How can you tell if an equation has no solution, one solution or infinitely many solutions?

26. $8m+13=13+8m$ 27. $6y-3=6y+8$ 28. $5t-2t=6+3t$

Write an equation for each problem, then solve.

29. The output of a function is 5 more than 2 times the input. Find the input when the output is 17.

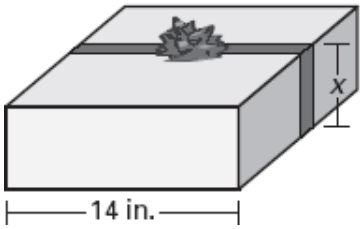
30. A fitness center offers yoga classes for $10 per class and sells yoga mats for $19.95. A person paid a total of $139.95 to the fitness center for yoga classes and the mat. Find the number of yoga classes the person took.

Identify a variable:_____

Write an equation: _____

Solve the equation:_____

31. It takes 70 inches of ribbon to make a bow and wrap the ribbon around the box. The bow takes 32 inches of ribbon. The width of the box is 14 inches. What is the height of the box?



Solve each proportion for the given variable.

32. $\frac{3}{a}=\frac{4}{5}$ 33. $\frac{6}{7}=\frac{10}{w}$ 34. $\frac{8}{4}=\frac{x-3}{2x+5}$

Solve each percent problem

35. What is 65% of 495?

36. 45 is 90% of what number?

37. 70% of what number is 56?

38. 3 is 2% of what number?

Write an equation, and then solve it.

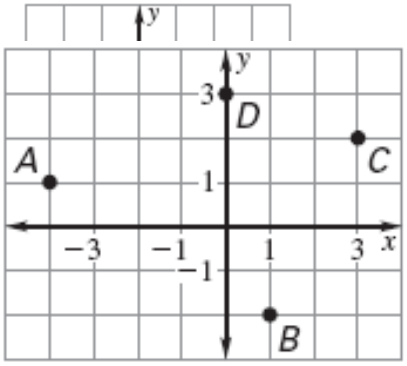
39. A map has a scale of 1in: 38 ft. Use the given map distance to find the actual distance: 5.5 in.

40. Matt bought a new Sony walkman. The walkman normally costs $47.95 but was advertised for 10% off. What was the final cost of the walkman?

41. Your family's dinner bill was $65.70. If your dad leaves a 15% tip, how much will he leave for the waiter?

Algebra I CP: Chapter 4 Name_____

Give the coordinates of the points labeled A, B, C, and D.

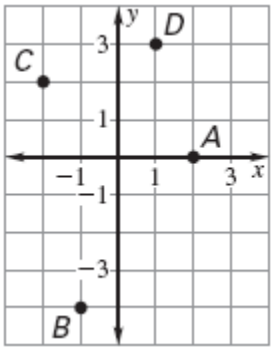
1. 

A = _____

B = _____

C = _____

D = _____

2. 

A = _____

B = _____

C = _____

D = _____

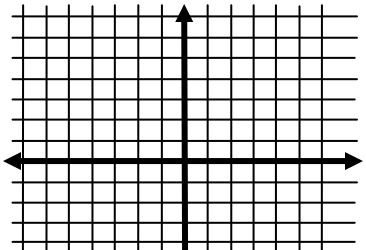
Graph the function with the given domain. Then identify the range of the function.

3. y = x + 4; domain: -2, -1, 0, 1, 2

x					
y					

4. $y = \frac{1}{2}x + 1$; domain: -4, -2, 0, 2, 4

x					
y					



Range:

Range:

Decide which of the two points lies on the graph of the line.

5. $2x + y = 10$

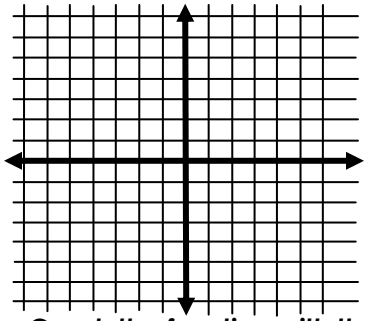
a. (4, 3)
b. (24, 18)

6. $2y - x = 9$

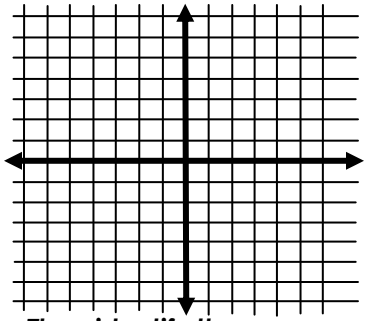
a. (5, 1)
b. (1. 5)

Graph the following equations.

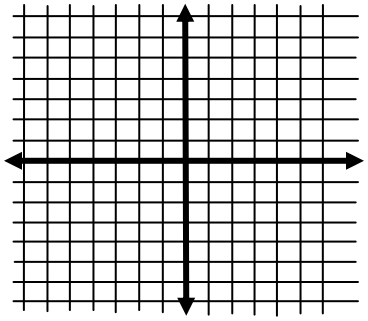
7. $2y - 4x = 10$



8. $y = 4$



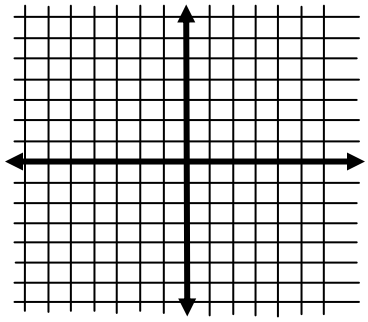
9. $y - 5x = 2$



Graph the function with the given domain. Then identify the range.

10. y = 5x – 3; D: x ≥ 0

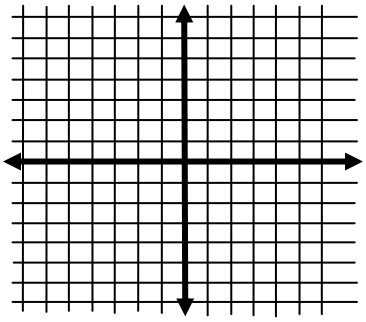
x					
y					



Range:_____

11. y = -5x + 3; D: x ≤ 0

x					
y					



Range: _____

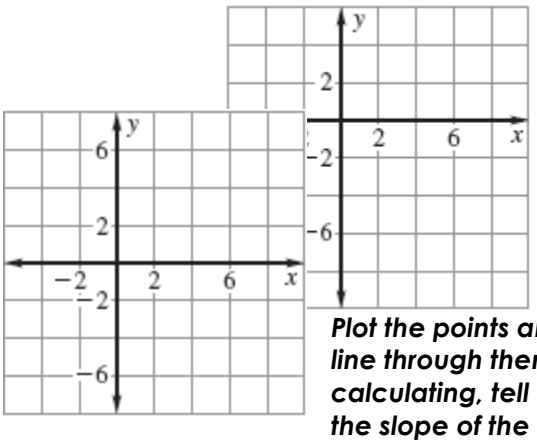
Find the x-intercept and the y-intercept of the graph of the equation.

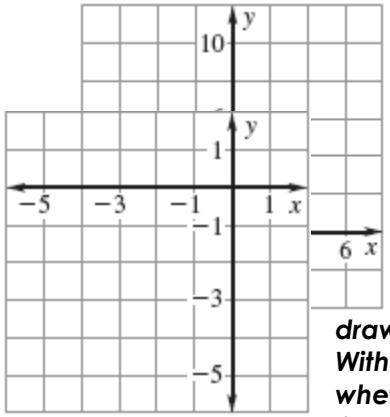
12. $9y - 5x = 20$

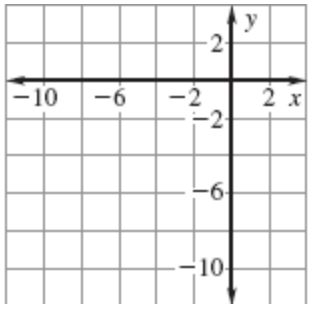
13. $7x + 8y = 18$

Graph the equation using any method.

14. $y = 8x - 7$ 15. $7x - 7y = 42$ 16. $y = 6 + 3x$







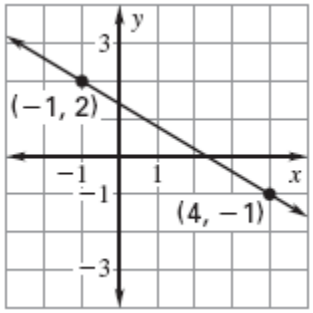
Plot the points and draw a line through them. Without calculating, tell whether the slope of the line is positive, negative, zero, or undefined.

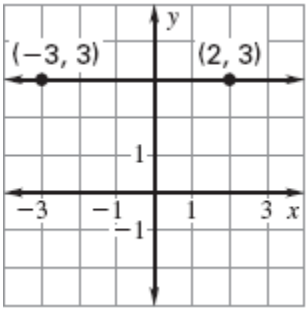
17. (-3, 3) and (7, -1) 18. (-4, -5) and (-3, -2) 19. (-7, 1) and (-7, -8)

_____ _____ _____

Find the slope of the line that passes through the points.

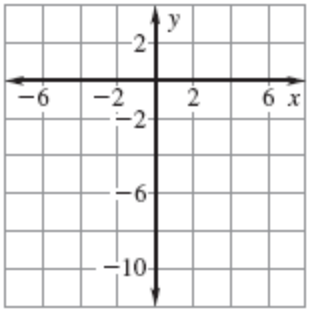
20. m = _____ 21. m = _____





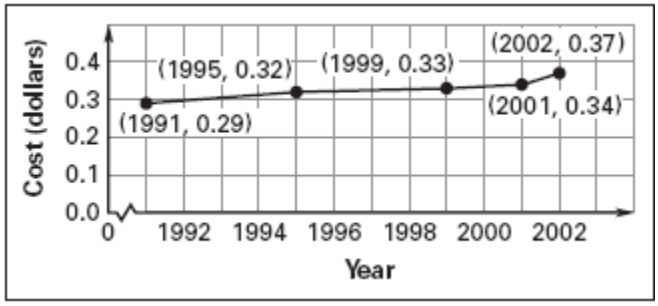
Use the slope formula to find the slope of the line that passes through the given points.

22. (3, 4) and (-5, 0) 23. (3, 0) and (8, 0) 24. (-6, -6) and (-2, -2)



25. The graph shows the cost (in dollars) to mail a letter that weighs one ounce during certain years.
a. Determine the time interval during which the cost to mail a one-ounce letter showed the greatest rate of change.

b. Determine the time interval during which the cost to mail a one-ounce letter showed the least rate of change.



Identify the slope and y-intercept of the line with the given equation.

26. $4y+6x=2$

27. $8y=2x+5$

28. $6x=12$

m=_____ b= _____ m=_____ b= _____ m=_____ b= _____

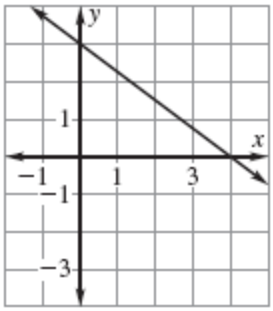
Match the equation with the graph. Put the letter of the graph on the line next to its equation.

29. $3x+4y=12$ _____

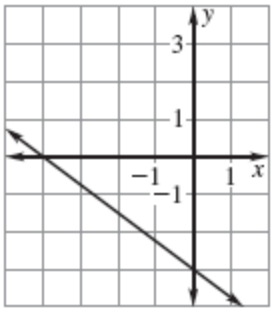
30. $3x+4y=-12$ _____

31. $3x-4y=12$ _____

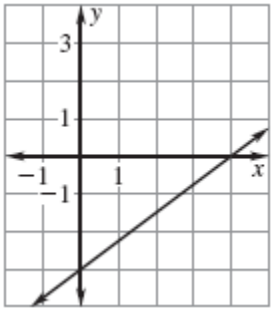
a.



b.



c.



Tell whether the equation represents direct variation. If so, identify the constant of variation.

32. $y=8x$

33. $3x+y=6$

34. $y=2x+1$

Given that y varies directly with x, use the specified values to write a direct variation equation that relates x and y.

35. x = 24, y = 3

36. x = 5, y = -30

37. x = -8, y = 64

Chapter 5 Review **Name:**_____
Algebra I **Hour:**_____

What is Slope-Intercept form?

_____

What is standard form?

_____
_

Write the equation of each line described in slope-intercept form.

1. $m = -5 \quad b = 10$

2. slope = -2 through (4, 6)

3. through (1 , 0) and (- 3 , -1)

Write the equation for each line in slope-intercept form.

4. $2y = -5x + 6$

5. $2y - 8x = 2$

4. Equation _____

slope _____ y-int (____,____)

5. Equation _____

slope _____ y-int (____,___)

Write the standard form for the given equation.

6. $y = 2x + 3$

7. $y = -\frac{2}{3}x + 5$

6. _____

7. _____

Write the equation in slope-intercept form.

8. $m = -4 \text{ and } b = \frac{1}{2}$

9. $m = \frac{-5}{3} \text{ through } (0, 2)$

8. _____

9. _____

10. $m = \frac{1}{3} \text{ through } (-6, 3)$

11. $m = \frac{-1}{2} \text{ through } (5, 1)$

10.

_____

11.

_____

12. (6, 4) and (4, -10)

13. (1, 4) and (5, 8)

12.

_____

13. _____

Find the slope of each line and circle if each set of points is parallel, perpendicular, or neither.

14. $a)\ \ 2y = -6x$
$b)\ \ -12y = -4x$

15. $a)\ \ y = 3x + 1$
$b)\ \ 6y = 2x + 1$

16. $a)\ \ 8y = 6x + 3,\ b)\ \ y = \frac{3}{4}x + 1$

14. m_a=_____
m_b=_____

parallel perpendicular
neither

15. m_a=_____
m_b=_____

parallel perpendicular
neither

16. m_a=_____
m_b=_____

parallel perpendicular
neither

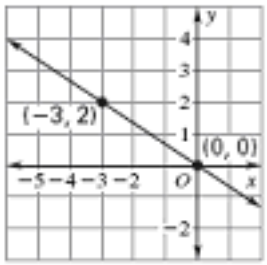
Write the equation of each line described in slope-intercept form.

17. Parallel to $y = -3x + 1$ through $(4, -1)$

18. Perpendicular to $y = \frac{1}{2}x$ through $(6, 11)$

Write an equation in the given form of the line shown.

19.

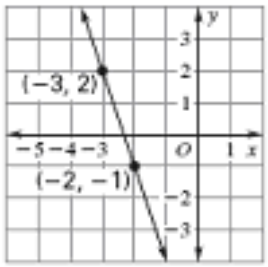


Point-slope form:_____

Slope-intercept form:_____

Standard form: _____

20.



Point-slope form:_____

Slope-intercept form:_____

Standard form: _____

21. Write an equation for the function with values $f(3) = 3$ and $f(-6) = -3$

21._____

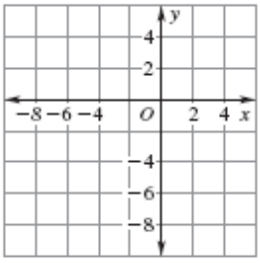
22. Write an equation for the function with values $f(1)=\frac{5}{2}$ and $f(4)=1$

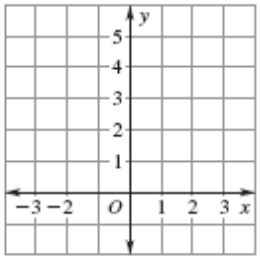
22._____

Graph the equation.

24. $y+2=\frac{-4}{5}(x+5)$

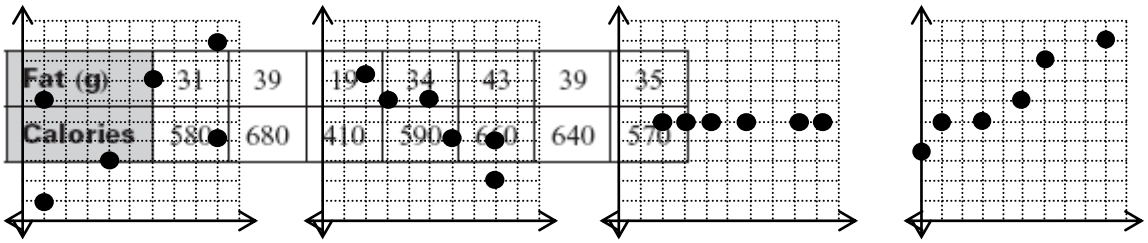
25. $y-4=\frac{1}{3}(x-1)$



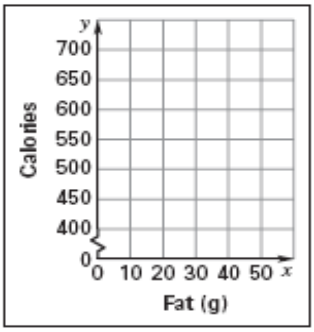


26. Describe the nature of the correlation of the data points.

(a) (b) (c) (d)



27. (a) Make a scatter plot of the data



(b) Describe the correlation

Chapter 6 Review

When would one flip the sign when solving inequalities?

_____

Write the inequality shown by the graph.

1.

2.

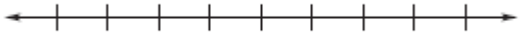
3.

Solve and graph each inequality.

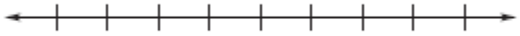
4. $3(8 - p) < 42$

5. $-5(2 - n) \geq -30$

6. $10x - 9 < 15 + 4x$



7. $-8y > -2y + 24$



8. $5(y + 1) > 5y + 8$

9. $3(4m - 2) \geq 6(2m - 1)$

10. $7(p + 3) < 4p + 21 + 3p$

11. $2(5x - 12) - 2x \leq 8x + 3$

Solve and graph each Compound Inequality.

12. $-3 < x + 1 \leq 5$

13. $-7 < x - 8 < 2$

14. $-5 < -5x \leq 20$

15. $0 \leq 2(x - 3) < 8$

16. $2(x + 4) < 6$ or $-x - 3 \leq -7$

17. $3x + 2 < 8$ or $-x + 3 < -2$

Solve each absolute value.

18. $|7x + 2| = 23$

19. $|5 - 2x| = 9$

20. $3|2x - 2| = 18$

21. $|x + 3| - 4 = -1$

22. $-6|10 - 2x| = 24$

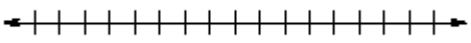
23. $2|6x + 5| - 1 = 25$

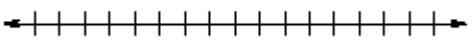
Solve and graph each absolute value inequality. Remember…AND/OR.

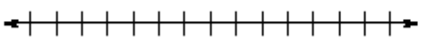
24. $|x| < 6.5$

25. $|x + 7| > 11$

26. $|3x - 2| \leq 7$



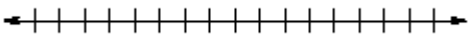


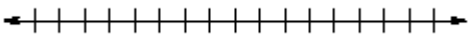


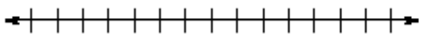
27. $|-x - 5| - 10 < 1$

28. $4|10 - x| < 16$

29. $2|x + 7| - 3 > 11$

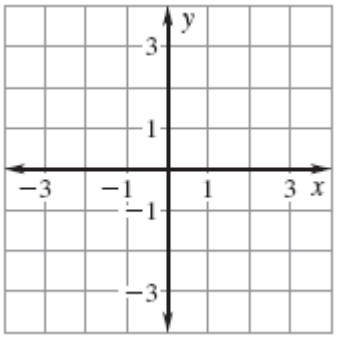




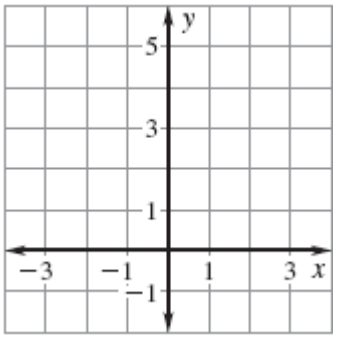


Solve and graph each inequality.

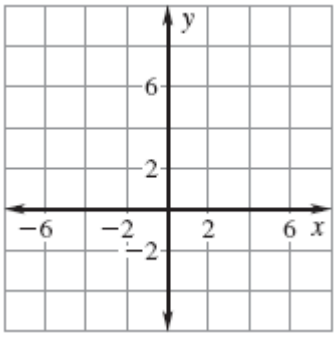
30. $4y \leq 6x - 2$



31. $5y \leq 10x + 15$



32. $x < 6$



Algebra I CP: Chapter 7 Midterm Review Name_____

Tell whether the ordered pair is a solution of the equation.

1. (4, 1)

$x + 2y = 6$
$3x + y = 11$

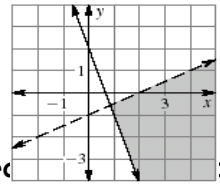
2. (-2, 1)

$5x - 2y = -12$
$x + 3y = 1$

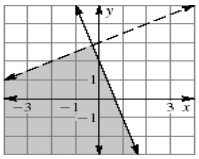
3. (-2, -5)

$-x + y = -3$
$-x + 3y = -13$

3a. (3, 0)

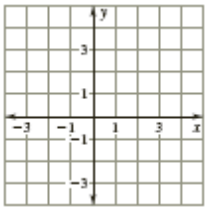


3b. (–2, 2)

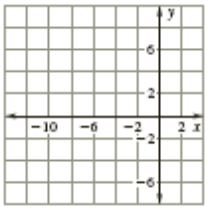


Solve the linear systems by graphing.

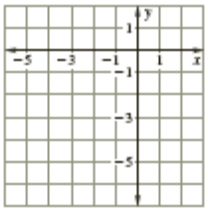
4. $y = 3x$
$y = 4x - 1$



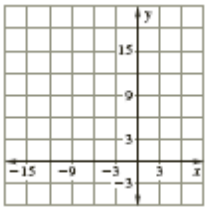
5. $2x + y = -4$
$x - y = -8$



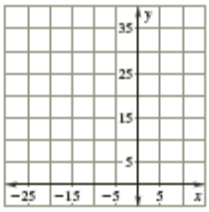
6. $-3x - y = -1$
$2x + 4y = -16$



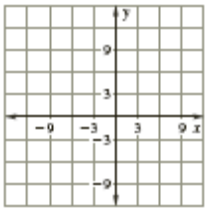
7. $2x + 2y = -6$
$-5x + y = 15$



8. $-6x + y = 33$
$2x - 8y = -34$



9. $3x + 2y = 3$
$5x + y = -9$



Solve the linear systems by substitution.

10. $\begin{aligned} x &= 6 - 4y \\ 3x - 4y &= 1 \end{aligned}$

11. $\begin{aligned} 4x + 3y &= 0 \\ 2x + y &= -2 \end{aligned}$

12. $\begin{aligned} 8x + 8y &= 24 \\ x + 5y &= 11 \end{aligned}$

13. $\begin{aligned} 2x + 2y &= 6 \\ -3x + 5y &= -33 \end{aligned}$

14. $\begin{aligned} -x + 3y &= -9 \\ 8x - 4y &= 32 \end{aligned}$

15. $\begin{aligned} 3x + 3y &= -18 \\ 4x - y &= -14 \end{aligned}$

Solve the following systems by using elimination.

16. $\begin{aligned} x+5y &= 28 \\ -x-2y &= -13 \end{aligned}$

17. $\begin{aligned} 7x-4y &= -30 \\ 3x+4y &= 10 \end{aligned}$

18. $\begin{aligned} 2x-6y &= -10 \\ 4x &= 10+6y \end{aligned}$

19. $\begin{aligned} x+3y &= 1 \\ -5x+4y &= -24 \end{aligned}$

20. $\begin{aligned} 2x+7y &= 2 \\ 5x-2y &= 83 \end{aligned}$

21. $\begin{aligned} 3x-5y &= -16 \\ 2x-3y &= -8 \end{aligned}$

<u>Bonus(not on Exam)</u> ***Solve the following 3-variable systems.***

22. $\begin{aligned} x-2y+4z &= -19 \\ 2x+y-3z &= 14 \\ 3x+y+2z &= 5 \end{aligned}$

23. $\begin{aligned} -3x+y-z &= -2 \\ 2x-y-2z &= -12 \\ 4x+2y+z &= 1 \end{aligned}$

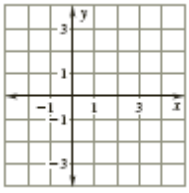
24. $\begin{aligned} x-2y+z &= -1 \\ x+2y-z &= 7 \\ x+y+z &= 2 \end{aligned}$

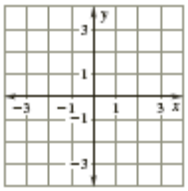
Graph the system of linear inequalities.

25. $\begin{aligned} y &\geq x-3 \\ y &\leq -x+2 \end{aligned}$

26. $\begin{aligned} x &< 3 \\ y &> 1 \\ y &\geq -x \end{aligned}$

27. $\begin{aligned} y &\leq x+2 \\ y &\geq 1 \end{aligned}$





Solve the story problems using any method that you want.

28. On Monday, the office staff at your school paid $8.77 for 4 cups of coffee and 7 bagels. On Wednesday, they paid $15.80 for 8 cups of coffee and 14 bagels. How much did it cost for a bagel and how much did it cost for a cup of coffee?

29. A hotel rents a double-occupancy room for $20 more than a single-occupancy room. One night, the hotel took in $3115 after renting 15 double-occupancy rooms and 26 single-occupancy rooms. Write and solve a linear system to find the cost of renting a double-occupancy room and the cost of renting a single-occupancy room.

30. A drummer is stocking up on drum sticks and brushes. The wood sticks that he buys are $10.50 a pair and the brushes are $24 a pair. He ends up spending $90 on sticks and on brushes and buys two times as many pairs of sticks as brushes. How many sticks and how many brushes did he buy?