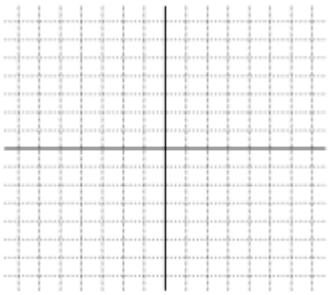
Summer Packet Reviewing Algebra 1 Name: _____

Solve:		
1. $5x - 12 = -3x + 6$	2. $8(2x - 1) - 5x = 25$	3. $\frac{3}{4}x + 2 = -16$
4. $3x - \frac{4}{5}(15 - 10x) = -16$	5. $\frac{2x+3}{5} = \frac{x-7}{2}$	6. $-10 + 2x + 3(5 - x) = \frac{1}{2}(4x - 8)$
Solve for the specific variable:		
7. Solve for y: $x - 3y = -15$	8. Solve for x: $y = mx + b$	9. Solve for F: $C = \frac{5}{9}(F - 32)$
Find the slope of the line passing through the points:		
10. (5, 8) and (9, 4)	11. (-6, 7) and (2, 9)	12. (3, 4) and (-2, 4)

Put in slope-intercept form and then graph:

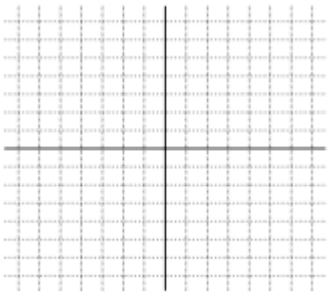
13. $4y - x = 8$

$y =$ _____



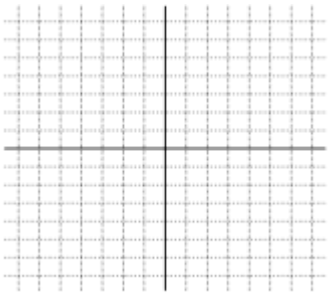
14. $-9x + 3y = -18$

$y =$ _____

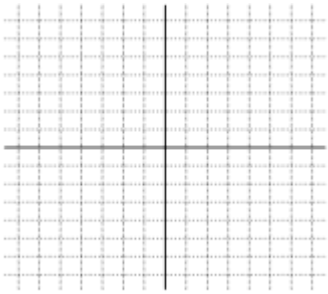


15. $5x - 4y = 8$

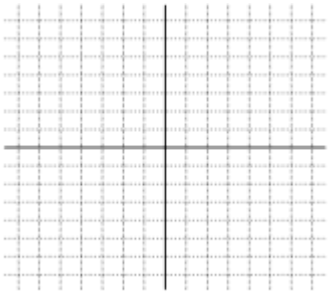
$y =$ _____



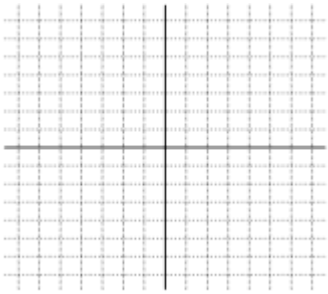
16. $x = 5$



17. $y = -2$



18. y = x



Write the following in all three forms of a line (Point-slope, slope-intercept, and standard)

19. A line with a slope of 7 and goes through (-2, 5)

Point Slope:

Slope-intercept:

Standard Form:

20. A line through points (1, -3) and (3, 3)

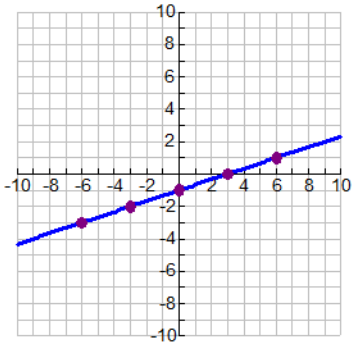
Point Slope:

Slope-intercept:

Standard Form:

Write an equation or inequality for the following graphs.

21.



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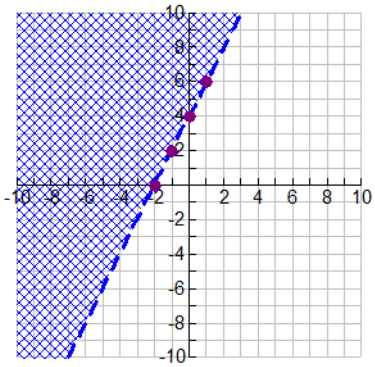

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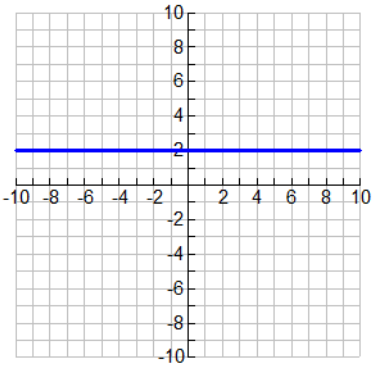


Solve:

24. $x - 5 \leq 3x + 7$

25. $5 - 8x \geq 11$

26. $-2 < x + 1 \leq 2$

27. $-6 \leq -3x - 15 \leq 12$

Solve using substitution or elimination. Write your answer as an ordered pair.

28. $3x - 2y = 23$
$y = 3x - 19$

29. $2x + 5y = 7$
$-4x - 10y = 2$

30. $3x + 2y = -5$
$4x - 3y = 16$

31. Julie sold 500 tickets for the spring musical. Students tickets cost \$2 and adult tickets cost \$5. Julie's sales totaled \$1789. How many student and how many adult tickets did Julie sell?

32. Joe has 120 coins, all nickels and dimes. He has 20 more dimes then nickels.

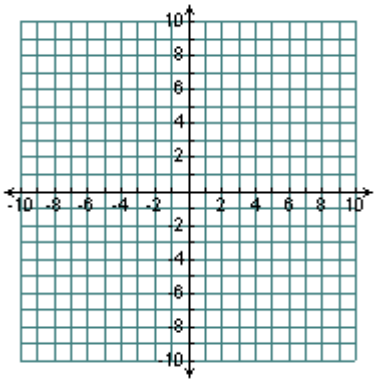
a) Write a system of equations representing the scenario.

b) How many nickels and how many dimes does Joe have?

Solve the following systems of equations by graphing. Write your solution as an ordered pair.

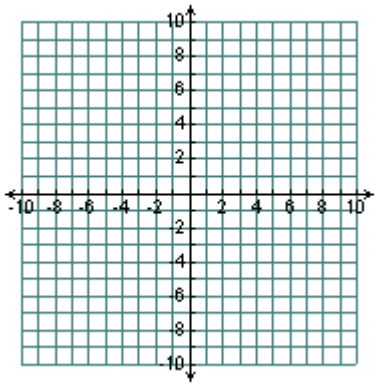
33. $y = -\frac{2}{3}x + 1$

$y = \frac{2}{3}x - 3$



34. $y = 2x + 5$

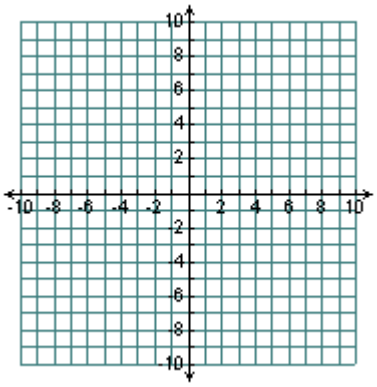
$x + 3y = -6$



Solve the following systems of inequalities.

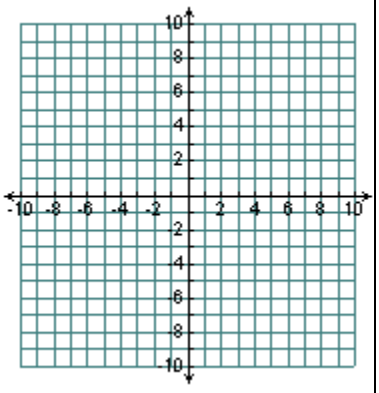
35. $x + y < 6$

$y \geq \frac{1}{3}x + 4$

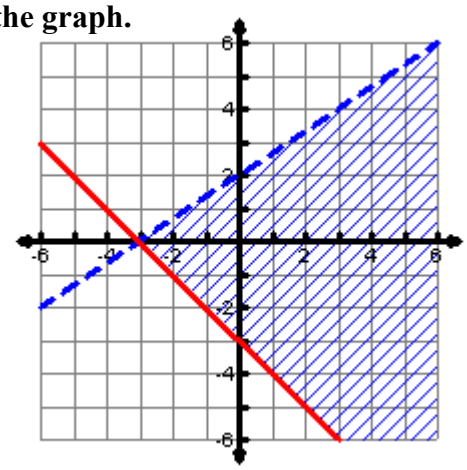


36. $y < 2x - 4$

$y > -\frac{1}{2}x + 1$



37. **Write a system of inequalities to describe the shaded area of the graph.**



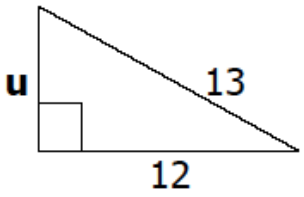
Answer:

_____

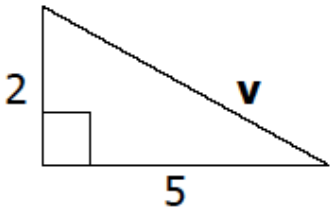
_____

Solve using Pythagoras

38.



39.



40.
Does a triangle with the sides 4. 3 and 5 produce a right-angled triangle?

41.
Does a triangle with the sides 10. 2 and 7 produce a right-angled triangle?

Name the polynomials by number of terms and highest degree

42. $4x^2 + 27x - 8$

43. $5x^3 + x^2 + 4$

44. $4x$

Simplify using Exponent Rules:

45. $4x^{-6}$

46. $(3x^5y)\bullet(2x^2y^3)$

47. $(3xy^2)^2$

Simplify using Exponent Rules:

48. $\dfrac{18b^3c^0}{4bc^3}\bullet\dfrac{3ab^2}{5a^2c^3}$

49. $\left(\dfrac{2x^5}{y^3}\right)^{-3}$

50. $(2x^8y^2)^3\bullet(5x^5y^3)^{-1}$

Simplify:		
51. $(3z^3 + 2z^2 + 7) - (z^3 - 3z - 6)$	52. $(5t^4 - 6) - (5t + 2) + (7t^4 + 4t)$	53. $(x - 5)(x + 9)$
54. $(3x - 2)(x + 4)$	55. $(4x + 7)^2$	56. $(2x - 5)(3x^2 + 4x - 8)$
57. $2(x^7 + 3)$	58. $2x^3y^5(x^2 + 2y^3)$	

Factor: (TAKE GCF OUT FIRST!)		
59. $x^2 - 49$	60. $x^2 - 11x + 30$	61. $2x^2 + 13x - 24$
62. $4x^2 - 20x + 25$	63. $2x^3 - 16x^2 + 30x$	64. $3x^2 - 13x - 10$

Find the vertex.

65. $y = 2x^2 - 16x + 6$

Vertex: _____

66. $y = x^2 + 4x + 4$

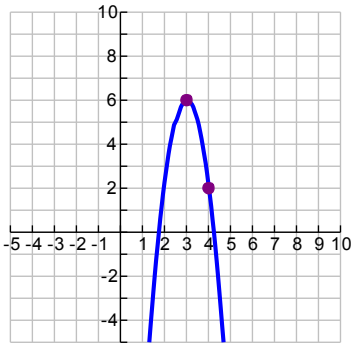
Vertex: _____

Rewrite each equation into general form ($y = ax^2 + bx + c$):

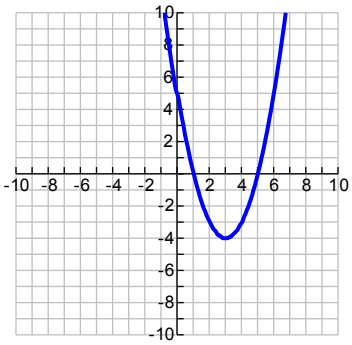
67. $y = -(x - 3)^2 + 7$

68. $y = 2(x + 8)^2 - 5$

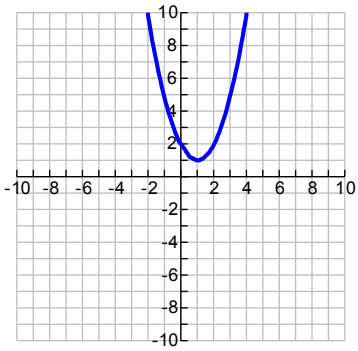
69. How many solutions does the quadratic function have?
Will the *a* value be positive or negative?



70. How many solutions does the quadratic function have?
Will the *a* value be positive or negative?



71. How many solutions does the quadratic function have?
Will the *a* value be positive or negative?



72. Some fireworks are fired vertically into the air from the ground at an initial velocity of 24.5 m/s. The formula $h = -4.9t^2 + 24.5t$ gives the fireworks height h in meters and time t in seconds. Find the highest point reached by the projectile just as it explodes. After how many seconds will the remaining fireworks hit the ground?

Highest point reached _____

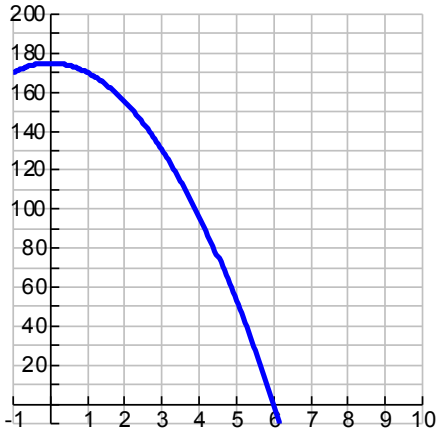
Time it takes to hit the ground_____

73. A tennis ball is dropped from the top of a tall building. The ball's height in meters, t seconds after it is released is $h(t) = -4.9t^2 + 175$.

a. Find $h(4)$ and give a real-world meaning of this value.

b. When is the ball 55 meters above the ground? Give your answer to the nearest second.

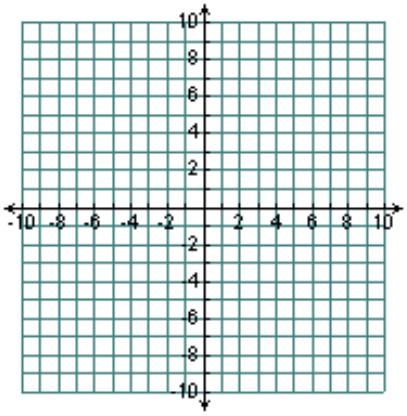
c. When does the ball hit the ground? Give your answer to the nearest second.



Graph using key points.

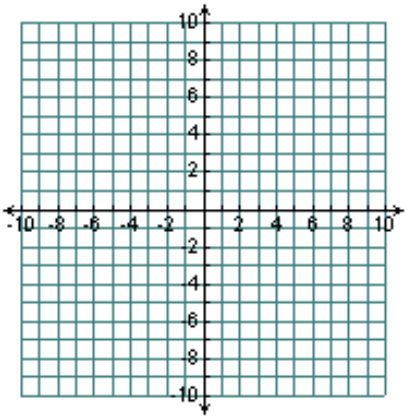
74.

$y = x^2 + 4x - 5$



75.

$y = -x^2 + 6x - 8$



Describe each graph as:

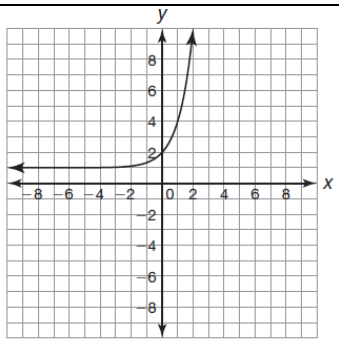
A function or not a function

Continuous or discrete

76.

a) _____

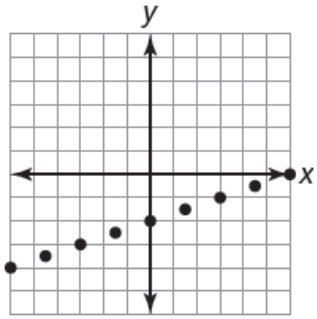
b) _____



77.

a) _____

b) _____



State the domain and range of each graph:

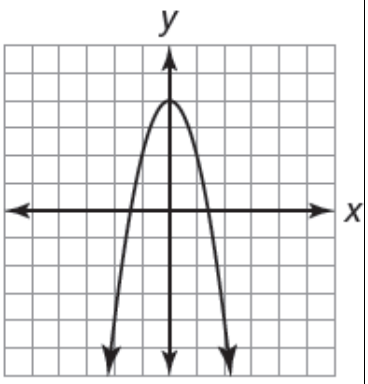
78.

Domain

_____

Range

_____



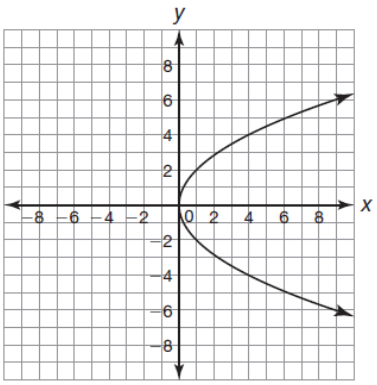
79.

Domain

_____

Range

_____



80. Given $f(x) = x^2 - 4x + 9$

a. Find $f(-2)$

b. Find x if f(x) = 6

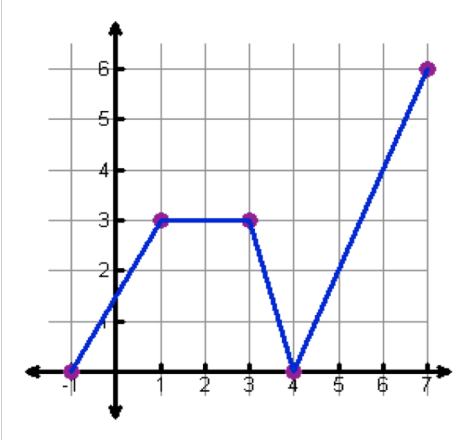
81. Given $f(x) = x^2 - 6x - 9$

a. Find $f(-3)$

b. Find x if f(x) = -2

82. Use the graph to answer the following questions:

a. Find f(2)

b. Find f(5)

c. Find x if f(x) = 4