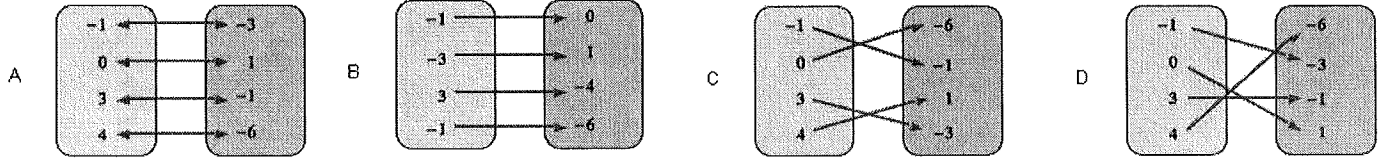


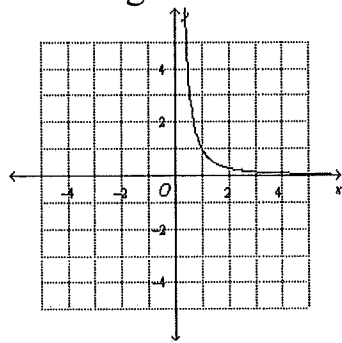
Advanced Mathematics Summer Assignment

1. Choose the correct mapping diagram for the relation.

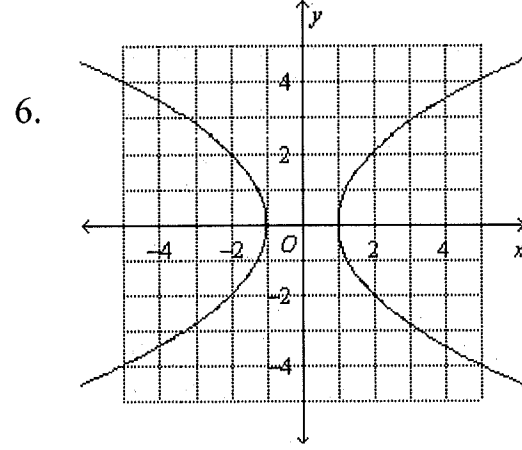
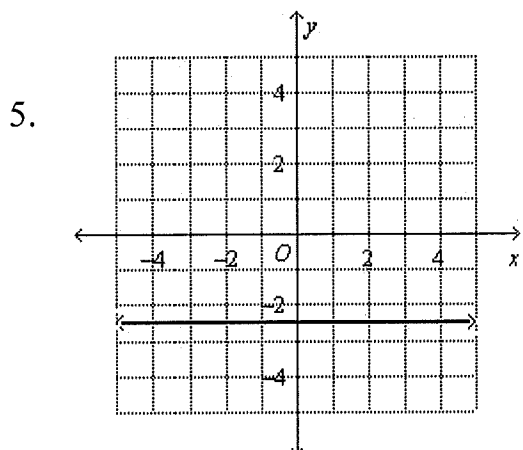
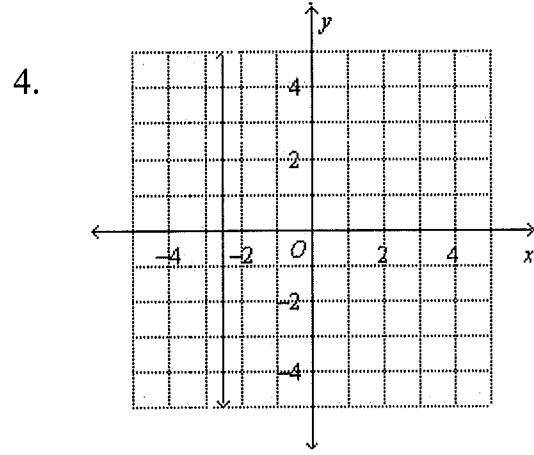
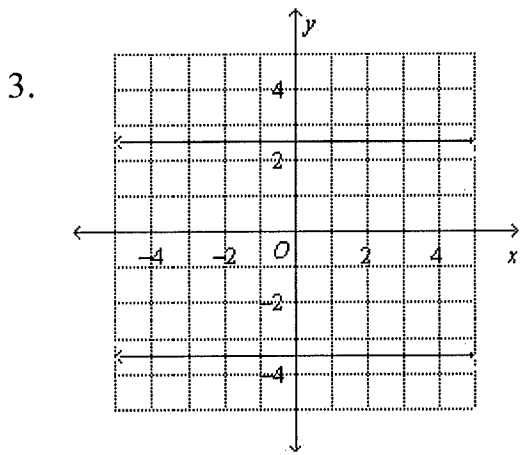
$$\{(-1, -3), (0, 1), (3, -1), (4, -6)\}$$



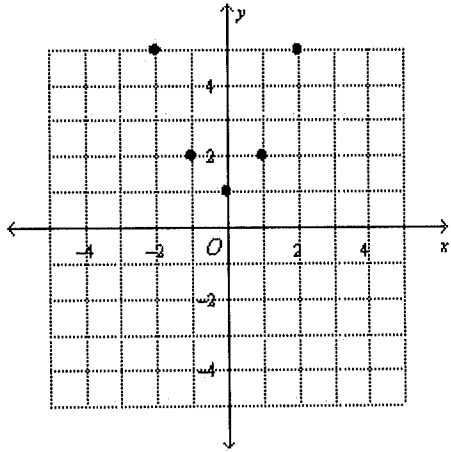
2. Find the domain and range of the relation and determine whether it is a function.



Use the vertical - line test to determine which graph represent a function.



7. For the relation below give the coordinates for the points shown. Find the domain and the range.



8. For the the function $f(x) = 5x + 1$; find $f(4)$.

9. For the the function $f(x) = x - 8$; find $f(-5)$.

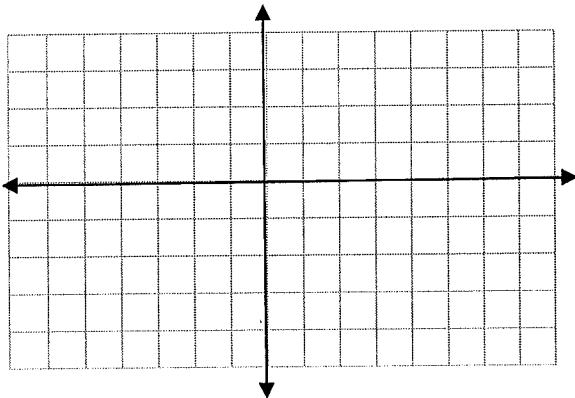
10. For the the function $f(x) = -2x^3 + 5$; find $f(2)$.

11. Given $f(x) = 4x - 2$, and $g(x) = -2x + 1$.

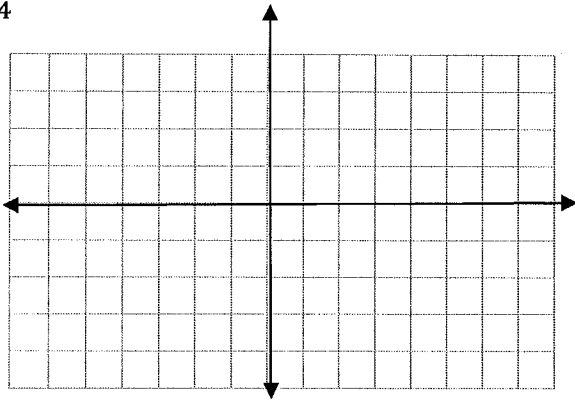
Find $\frac{f(5)}{g(-3)}$

Sketch the graph of the given equation when $x = \{-2, -1, 0, 1, 2\}$

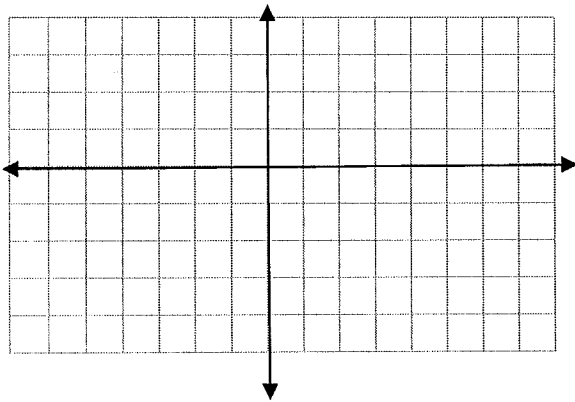
12. $y = 3(x - 3) + 3$



13. $y = \frac{1}{4}x - 3$

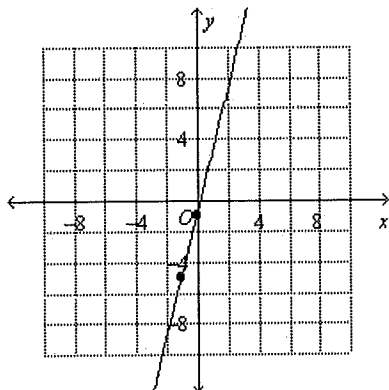


14. $y = -3x - y = 6$



15. Write an equation for the line that passes through the two points. $(-3, 5)$ and $(2, -5)$

16. Find the slope of the line through the pair of points.



17. Find the slope of the line through the pair of points. (6, 12) and (-6, -2)

18. Find the slope of the line through the pair of points. (3, 2) and (2, -1)

19. Find the slope of the line. $y = -\frac{1}{2}x - 4$

20. Find the slope of the line. $3x + 5y = -15$

21. Find the slope of the line. $y = \frac{1}{3}x + \frac{1}{2}y = 6$

22. Write the equation of the line passing through the point (-2, -2) with the slope = - 8.

23. Write the equation of the line passing through the point (5, -3) with the slope of $\frac{8}{7}$.

Solve the equation

24. $-3 = \frac{x}{8} - 2$

25. $9 + 8n = 41$

26. $4(y + 4) = 36$

27. Write a closed-form definition for a function that fits the table

Input	Output
0	5
1	8
2	11
3	14
4	17

28. Write a closed-form definition for a function that fits the table

Input	Output
0	-4
1	-9
2	-14
3	-19
4	-24

29. Write the equation for the line through (2, 6) and perpendicular to the line $y = -\frac{5}{4}x + 1$.

30. Write the equation for the line through (-4, 6) and parallel to the line $y = -3x + 4$.

31. Choose the equation for the vertical line through (-7, -4).

32. A balloon takes off from a location that is 158 ft above sea level. It rises 56 ft/min. Choose the equation that models the balloon's elevation h as a function of time t .

A] $t = 158h + 56$

B] $h = 56t + 158$

C] $h = 158t + 56$

D] $t = 56h + 158$

33. A new candle is 8 inches tall and burns at a rate of 2 inches per hour. Choose the equation that models the height h after t hours.

A] $t = -2h + 8$

B] $h = 8t + 2$

C] $t = 8h - 2$

D] $h = -2t + 8$

34. A 3-mile cab ride costs \$3.00. A 6 mile cab ride costs \$4.80. Choose the linear equation that models cost c as a function of distance d .

A] $c = 0.80d + 1.20$

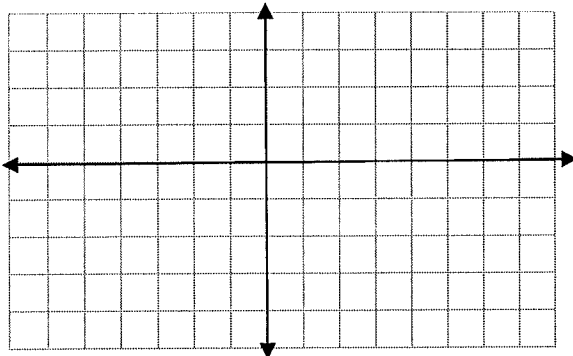
B] $c = 1.00d + 1.80$

C] $d = 0.60c + 1.80$

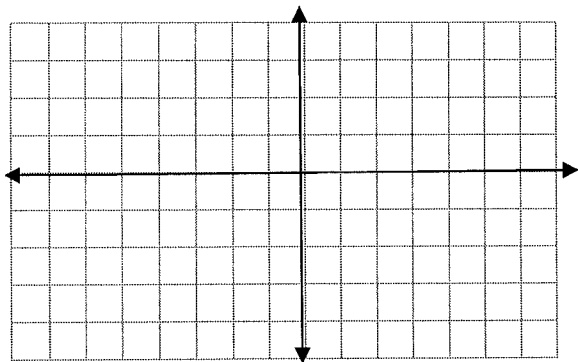
D] $c = 0.60d + 1.20$

35. A cannery processed 605 pounds of strawberries in 3.5 hours. The cannery processed 2100 pounds in 10 hours. Write an equation that models the weight of strawberries s processed in t hours. How many pounds of strawberries can be processed in 12 hours?

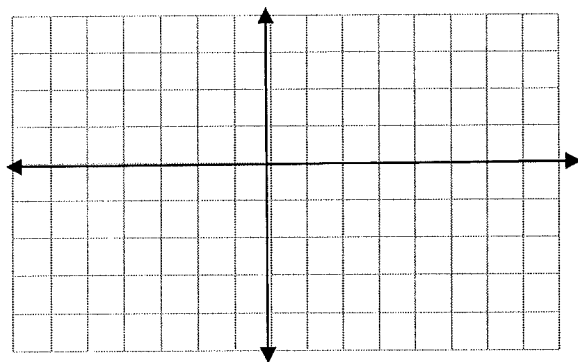
36. Graph the equation $y = |x+4|$



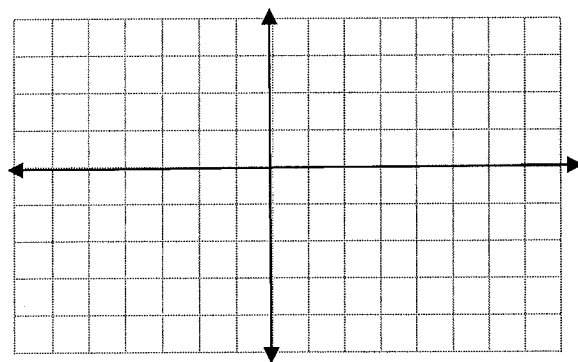
37. Graph the equation $y = -|2x+3|$



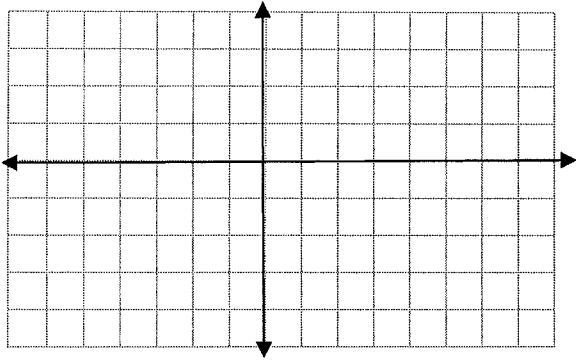
38. Graph the inequality. $-6x + 5y \geq -30$



39. Graph the inequality. $4x - 2y < -3$



40. Graph the inequality. $-3x + y \leq 5$.



Solve the system using substitution or elimination.

41. $4x + 2y = 22$
 $5x - 2y = 14$

42. $3x + 5y = -28$
 $x + 10y = -51$

43. $y = 2x + 3$
 $y = 3x + 1$

Factor each expression completely

44. $-15x^2 - 21x$

45. $8x^3 + 12x - 16$

46. $x^2 + 14x + 48$

47. $x^2 - 6x + 8$

48. $x^2 - 2x - 63$

49. $3x^2 + 26x + 35$

$$50. 9x^2 - 16$$

Solve by factoring

$$51. 4x^2 + 28x - 32 = 0$$

$$52. 3x^2 = 12$$

$$53. 81x^2 + 18x - 35$$

Solve by completing the square.

$$54. x^2 + 10x + 14 = 0$$

$$55. x^2 + 10x + 35 = 0$$

Solve using the quadratic formula

$$56. 5x^2 + 9x - 2 = 0$$

$$57. -2x^2 + x + 8 = 0$$

$$58. 4x^2 - x + 3 = 0$$

Simplify each expression

59. $(-1 + 6i) + (-4 + 2i)$

60. $(2 - 5i) - (3 + 4i)$

61. $(6i)(-6i)$

62. $(2 + 5i)(-1 + 5i)$