

Core Algebra 2



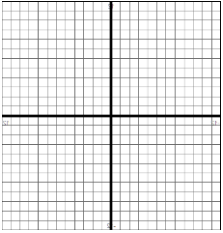
**KEEP
CALM
AND
GOOD LUCK
WITH MIDTERMS.**

Midterm Review

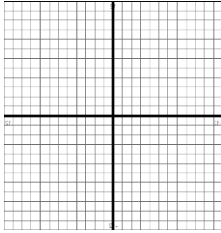
Chapter 1 Review

There will be 38 questions on the midterm exam. Graph the function and identify the function, then describe the transformations of functions.

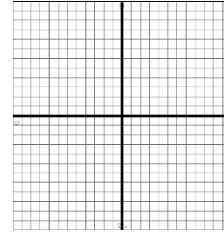
1. $f(x) = x + 3$



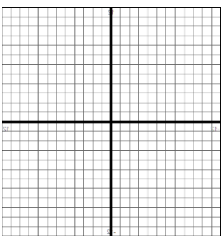
2. $h(x) = \frac{1}{2}x^2$



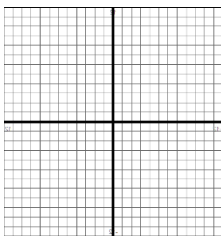
3. $f(x) = -|x| - 3$



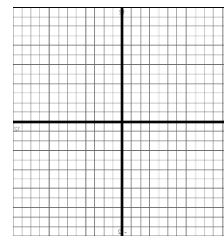
4. $f(x) = 2(x + 1)^2 - 3$



5. $h(x) = \frac{1}{2}(x + 2)^2 + 1$



6. $f(x) = -3(x - 1)^2 - 2$



7. Write a function g that is a translation 4 units right and 6 units down, followed by a reflection about the x -axis of the graph of $f(x) = -\frac{1}{2}(x + 1)^2$.

8. Write a function g that is a translation 3 units left and 4 units up, followed by a reflection about the x -axis of the graph of $f(x) = (x + 3)^2$.

9. Write a function g that is a translation 2 units right and 6 units up, followed by a v. stretch of 2 of the graph of $f(x) = -(x - 3)^2 - 2$.

10. Write a function g that is a translation 3 units left and 2 units down, followed by a v. shrink of $\frac{1}{2}$ of the graph of $f(x) = 2(x + 1)^2 + 4$.

11. Write a function g that is a translation 2 units left and 3 units down, v. stretch of 3, followed by a reflection about the x -axis of the graph of $f(x) = -2(x + 1)^2 - 1$.

12. Write a function g that is a translation 4 units right and 5 units up, v. shrink of $\frac{1}{2}$, followed by a reflection about the x -axis of the graph of $f(x) = 4(x + 1)^2 - 3$.

Write a function g whose graph represents the indicated transformations of the graph of f for #13-16.

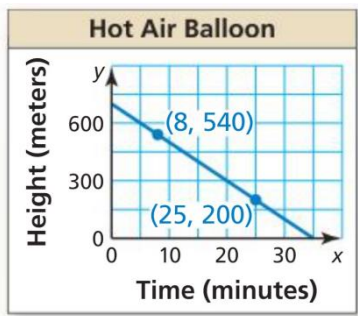
13. $f(x) = x$; vertical stretch by a factor of 3.

14. $f(x) = 2|x| - 9$; translation 2 units left and 6 units up followed by a vertical shrink by a factor of $\frac{1}{3}$.

15. $f(x) = -3x + 4$; translation 3 units down followed by a reflection about the x -axis.

16. $f(x) = \frac{1}{2}(x + 2)^2 - 5$; vertical stretch by a factor of 2 followed by a translation of 4 units right.

17. Use the graph to write an equation of the line and interpret the slope.



Find the slope of the following points.

18. (3,-5)(5,-9)

19. (-6,10)(-4,7)

20. (1,8)(-3,8)

21. (-2,7)(8,11)

22. (-4,6)(4,-3)

23. (-2,3)(-8,6)

Write the linear equation in slope-intercept form for each given set of information for #24-32.

24. $m = \frac{2}{3}, (3,6)$

25. $(-2,5), (-1,1)$

26.

x	y
-4	2
-1	1
2	0
5	-1

27. $m = 2, (-1,4)$

28. $(5,9), (3,13)$

29. $(-3,7), (-1,7)$

30. The table shows the numbers of ice cream cones sold for different outside temperatures (in degrees Fahrenheit). Do the data show a linear relationship? If so, write an equation of a line of fit and use it to estimate how many ice cream cones are sold when the temperature is 60°F.

Temperature, x	53	62	70	82	90
Number of cones, y	90	105	117	131	147

Solve the system of equations by graphing.

31. $3x + y = 3$
 $4x + 2y = 2$

32. $2x + 2y = 6$
 $3x + y = 1$

33. $-x + 2y = -1$
 $2x - 3y = 3$

Solve the system of equations by substitution.

34. $2x - 3y = -10$
 $3x + y = 7$

35. $3x - 2y = 5$
 $x + 3y = 9$

36. $2x - y = -8$
 $4x + 3y = 4$

Solve the system of equations by elimination.

37. $2x + y = 6$
 $-3x - 2y = -8$

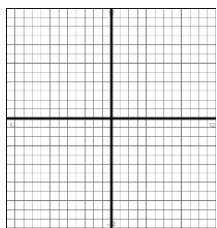
38. $3x - 2y = 4$
 $4x + 3y = 11$

39. $x + 3y = 6$
 $3x + 2y = 4$

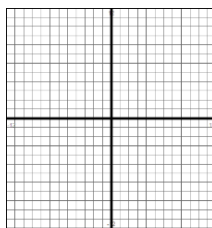
Chapter 2 Review

Describe the transformation of $f(x) = x^2$ represented by g . Then graph each function.

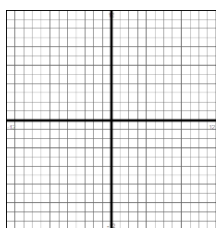
40. $g(x) = -\frac{1}{2}x^2$



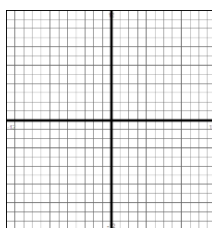
41. $g(x) = -3(x + 2)^2 - 1$



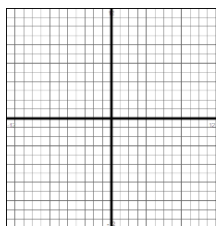
42. $g(x) = 2(x - 1)^2$



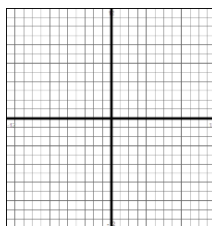
43. $g(x) = 4(x + 3)^2 + 1$



44. $g(x) = -\frac{1}{4}x^2 + 3$



45. $g(x) = -(x - 4)^2 - 5$



Write a rule for $g(x)$.

46. The graph of g is a vertical stretch by a factor of 3, followed by a translation 5 units right of the graph $f(x) = x^2$.

47. The graph of g is a translation 2 units left and 3 units up, followed by a reflection about the x -axis of the graph $f(x) = x^2 - 2$.

48. The graph of g is a translation 3 units right, 2 down, and a vertical stretch by a factor of 3 of the graph $f(x) = x^2$.

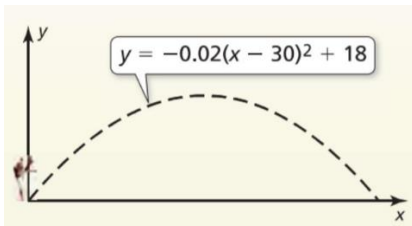
49. The graph of g is a translation 5 units left and 4 units up, followed by a reflection about the x -axis of the graph $f(x) = (x + 1)^2$

50. The graph of g is a translation 4 units left and 3 units down, followed by a reflection about the x -axis of the graph $f(x) = (x - 2)^2 + 4$

51. The graph of g is a translation 3 units right and 2 units down, vertical shrink by a factor of $\frac{1}{2}$, followed by a reflection about the x -axis of the graph $f(x) = (x - 2)^2 + 4$

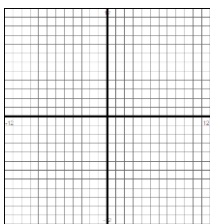
52. The graph of g is a translation 4 units left and 5 units down, vertical stretch by a factor of 3, followed by a reflection about the x -axis of the graph $f(x) = (x - 1)^2 + 2$

53. The graph represents the path of a football kicked by a player, where x is the horizontal distance (in yards) and y is the height (in yards). The player kicks the ball a second time so that it travels the same horizontal distance, but reaches a maximum height that is 6 yards greater than the maximum height of the first kick. Write a function that models the path of the second kick.

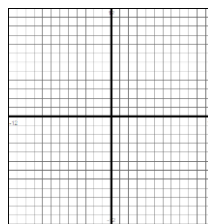


Graph the function. Label the vertex and axis of symmetry. Find the minimum value or maximum value of the function.

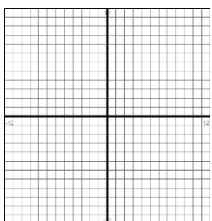
54. $f(x) = 3(x - 1)^2 - 4$



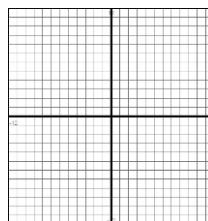
55. $h(x) = (x - 3)(x + 7)$



56. $f(x) = -2(x + 3)^2 + 6$



57. $h(x) = (x + 4)(x - 2)$



Write the equation of the parabola with the given characteristics.

58. Write a quadratic function in standard form with a vertex of $(3,2)$ and y -intercept of 20.

59. passes through $(-2,3)$, and has a vertex of $(-4,7)$.

60. Passes through $(4,3)$ and has x -intercepts -1 and 5 .

61. passes through $(4,11)$, and has a vertex of $(2,3)$.

62. Passes through $(1,4)$ and has x -intercepts -2 and 6 .

63. passes through $(2,-5)$, and has a vertex of $(-2,-1)$.

64. Passes through $(3,4)$ and has x -intercepts 0 and 8 .

65. passes through $(5,1)$, and has a vertex of $(3,-1)$.

66. Passes through $(-1,-6)$ and has x -intercepts -5 and 3 .

Factor (these will not be on the Exam but need to review and practice).

67. $x^2 - 7x + 12$

68. $x^2 - 36$

69. $x^2 + 10x - 24$

70. $3x^2 - 6x + 9$

71. $2x^2 + 9x - 5$

72. $x^2 - 10x + 25$