

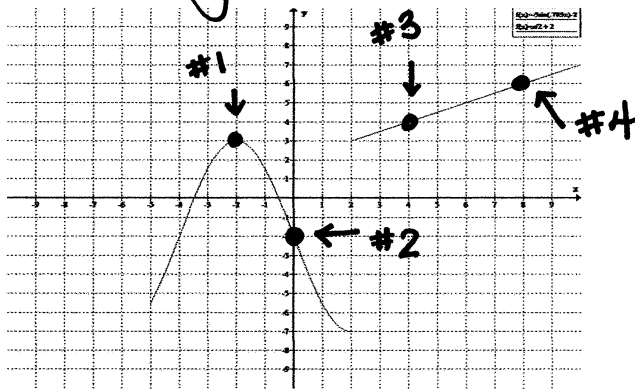
Test #2 Study Guide

Name: Key Date: _____

***** THIS IS NOT HOMEWORK*****

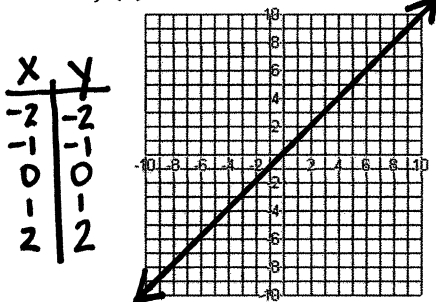
Lesson 2.7— Use the graph at right to find the following:

- $f(-2) = 3$
- $f(0) = -2$
- $f(4) = 4$
- Find x when $f(x) = 6 = 8$

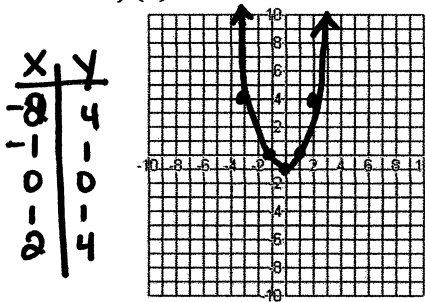


Lesson 2.7— Sketch the parent function using a table. State the domain and range.

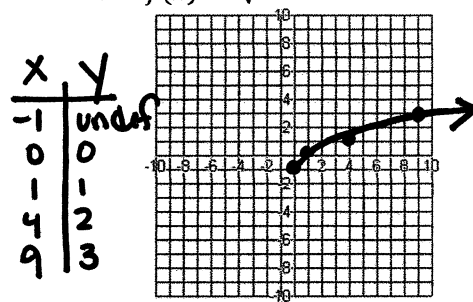
5. $f(x) = x$



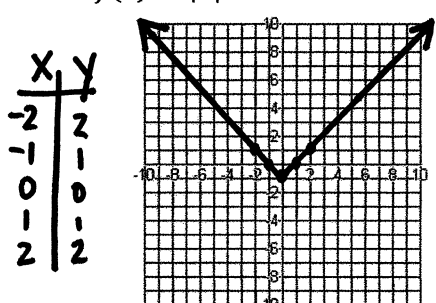
7. $f(x) = x^2$



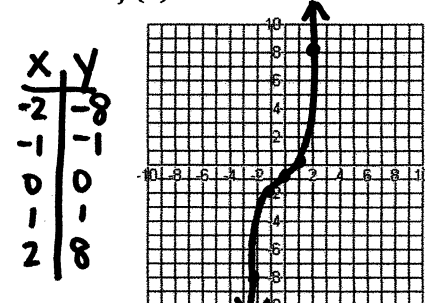
9. $f(x) = \sqrt{x}$



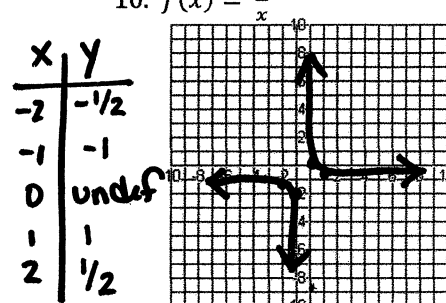
6. $f(x) = |x|$



8. $f(x) = x^3$



10. $f(x) = \frac{1}{x}$

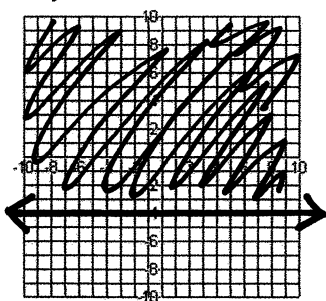


Lesson 2.7— Name the parent function. Describe the transformations from the parent function.

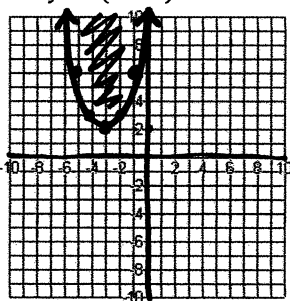
- $y = -\sqrt{x+1}$ (Sq. Root) reflect x-axis left 1
- $y = \frac{1}{2}(x-7)^2$ Compress 1/2 right 7 (Quadratic)
- $y = -|x| - 9$ (Abs. Value) reflect x-axis down 9
- $y = \frac{1}{x+5} + 2$ (Rational) left 5 up 2
- $y = \frac{1}{3}x^3 - 8$ (Cubic) Compress 1/3 down 8
- $y = 7x - 1$ (linear) stretch 7 down 1

Lesson 2.8— Graph the inequalities.

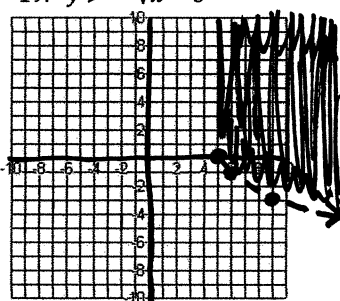
17. $y \geq -4$



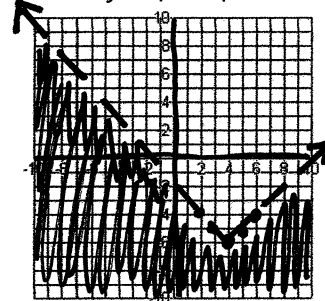
18. $y \geq (x+3)^2 + 2$



19. $y > -\sqrt{x-5}$



20. $y < |x-4| - 6$



Lesson 5.1— Simplify the following.

21. $(m^4n^6)^4(m^3n^2p^5)^6$ $m^{34}n^{36}p^{30}$

22. $(\frac{3}{2}d^{-2}f^4)^4(-\frac{4}{3}d^5f)^3$ $-12d^7f^{19}$

23. $(\frac{2x^3y^2}{-x^2y^5})^{-2}$ $\frac{y^6}{4x^2}$

24. $\frac{(3x^{-2}y^3)(5xy^{-8})}{(x^{-3})^4y^{-2}}$ $\frac{15x^3}{y^3}$

25. $\frac{-27x^3(-x^7)}{16x^4}$ $\frac{27x^6}{16}$

26. $\frac{-20(m^2v)(-v)^3}{5(-v)^2(-m^4)}$ $-\frac{4v^2}{m^2}$

27. $(4d^2t^5v^{-4})(-5dt^{-3}v^{-1})$ $-\frac{20d^3t^2}{v^5}$

28. $-(4w^{-3}z^{-5})(8w)^2$ $-\frac{32}{wz^5}$

Lesson 6.1— Simplify the following.

Box → 29. $(5n - 3)^2$ $25n^2 - 30n + 9$

30. $(6w - 11w^2) - (4 + 7w^2)$ $-18w^2 + 6w - 4$

$w^3 + 8t^3$

31. $(w + 2t)(w^2 - 2wt + 4t^2)$

32. $(3n^2 + 1) + (8n^2 - 8)$ $11n^2 - 7$

33. $(5d + 5) - (d + 1)$ $4d + 4$

34. $4x(2x^{-1} - x - 2) - 5(x^2 + 2x)$

35. $(g + 5) + (2g + 7)$ $-9x^2 - 18x + 8$

36. $(x + y)(x^2 - 3xy + 2y^2)$ $x^3 - 2x^2y - 1xy^2 + 2y^3$

Lesson 6.1— Evaluate the following expressions given the functions below.

$f(x) = x^2 - 1$

$g(x) = 2x - 3$

$h(x) = 1 - 4x$

37. $(f - g)(x) = x^2 - 2x + 2$

40. $(g + f)(-2) = -4$

43. $(\frac{f}{h})(x) = \frac{x-1}{1-4x}, x \neq \frac{1}{4}$

38. $(f - g)(-1) = 5$

41. $(g \cdot h)(x) = -8x^2 + 14x - 3$

44. $(\frac{f}{h})(2) = \frac{3}{-7}$

39. $(g + f)(x) = x^2 + 2x - 4$

42. $(g \cdot h)(4) = -75$

Lesson 6.1— Evaluate the following expressions given the functions below.

$f(x) = 2x - 1$

$g(x) = 3x$

$h(x) = x^2 + 1$

45. $f(g(-3)) = -19$

47. $g(h(24)) = 1731$

49. $f(h(x)) = 2x^2 + 1$

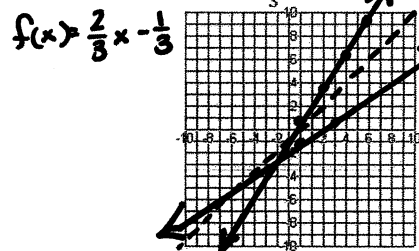
46. $f(h(7)) = 99$

48. $f(f(x)) = 4x - 3$

50. $h(g(x)) = 9x^2 + 1$

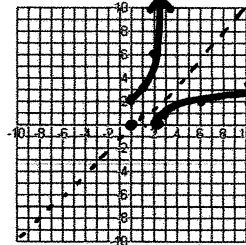
Lesson 6.2— Find the inverse of each function, state whether the inverse is a function and the graph both.

51. $f(x) = \frac{2x-1}{3}$



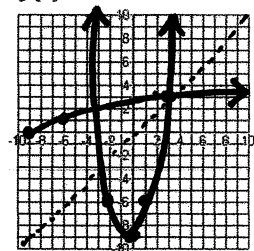
$f^{-1}(x) = \frac{3x+1}{2}$
or $\frac{3}{2}x + \frac{1}{2}$
yes

53. $f(x) = \sqrt{x-2}$



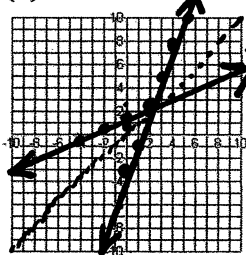
$f^{-1}(x) = x^2 + 2$
yes

55. $f(x) = 3x^2 - 9$



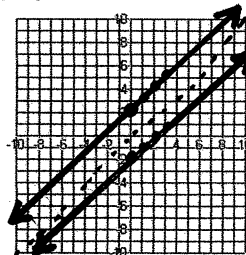
$f^{-1}(x) = \sqrt{\frac{x+9}{3}}$
 $f^{-1}(x) = \sqrt{\frac{1}{3}x + 3}$
yes

52. $f(x) = 2x - 3$



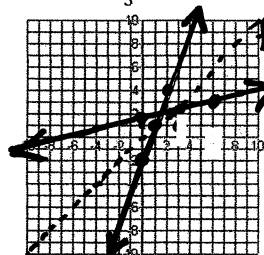
$f^{-1}(x) = \frac{x+3}{2}$
or $\frac{1}{2}x + \frac{3}{2}$
yes

54. $f(x) = x + 2$



$f^{-1}(x) = x - 2$
yes

56. $f(x) = \frac{x+2}{3}$



$f^{-1}(x) = 3x - 2$
yes

Lesson 6.2— Determine whether each pair of functions are inverse functions. Write yes or no.

57. $f(x) = 3x - 1$ $f(g(x)) = 3(\frac{1}{3}x + \frac{1}{3}) - 1 = x + 1 - 1 = x$ ✓
 $g(x) = \frac{1}{3}x + \frac{1}{3}$ $g(f(x)) = \frac{1}{3}(3x - 1) + \frac{1}{3} = x - \frac{1}{3} + \frac{1}{3} = x$ ✓
yes

58. $f(x) = 2x + 5$ $f(g(x)) = 2(5x + 2) + 5 = 10x + 4 + 5 = 10x + 9$
 $g(x) = 5x + 2$ $g(f(x)) = 5(2x + 5) + 2 = 10x + 25 + 2 = 10x + 27$
No!

59. $f(x) = 8x - 12$ $f(g(x)) = 8(\frac{1}{8}x + 12) - 12 = x + 96 - 12 = x + 84$
 $g(x) = \frac{1}{8}x + 12$ $g(f(x)) = \frac{1}{8}(8x - 12) + 12 = x - \frac{3}{2} + 12 = x + \frac{21}{2}$
No!