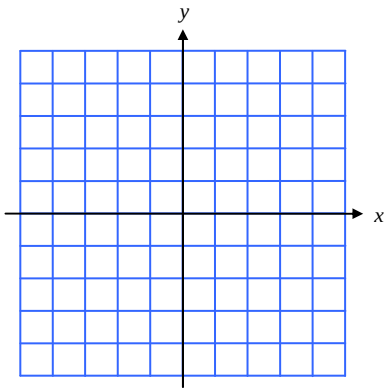
Chapter 1 Review

Non-Graphing Calculator

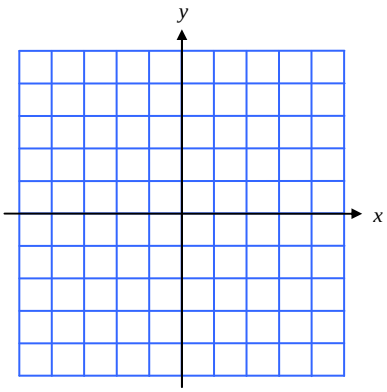
For(#1-3) do the following:

(a) Identify the parent
(b) Describe the transformation.
(c) identify the domain and range and
(d) Sketch the graph

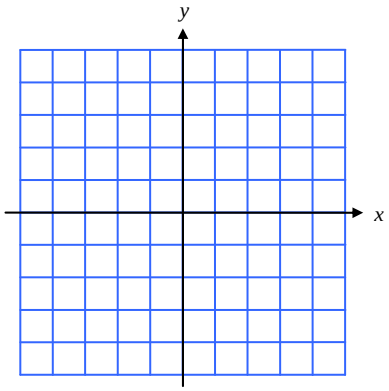
1. $y = 2|x + 3| - 4$



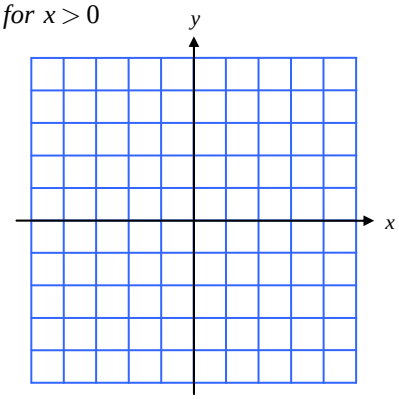
2. $y = -\sqrt{2x-6}$



3. $y = \dfrac{1}{x+2} + 3$



4. Sketch: $f(x) = \begin{cases} x^2 \text{ for } x \le 0 \\ \dfrac{1}{x} \text{ for } x > 0 \end{cases}$



Prove algebraically whether the function is even, odd, or neither.

5. $f(x) = 7x^4 - x^2$

6. $f(x) = \dfrac{3}{4x}$

KNOW THE 12 PARENT FUNCTIONS AND PROPERTIES … BE ABLE TO ANSWER QUESTIONS LIKE THOSE ON PAGE 109 #19 – 28.

For 7 & 8,

(a) Find the domain
(b) determine the vertical asymptote(s) and
(c) determine the horizontal asymptotes(s).

7. $g(x)=\dfrac{4x^2+6}{x+1}$

8. $h(x)=\dfrac{5x^2+2}{x^2-9}$

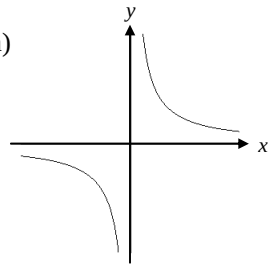
9. Graph the function and

(a) state the intervals on which the function is increasing, decreasing, or constant.
(b) Find all relative maximum and minimum values.

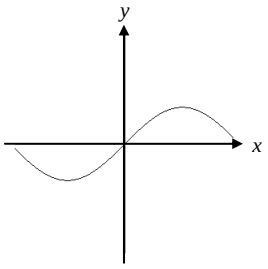
$$f(x)=2x^3-5x^2-4x+3$$

10. Determine if the graphs are functions. Is the graph one-to-one? Explain.

a)



b)



For #11-17, Given: $f(x) = 2x^2 - 7$ and $g(x) = 3x - 2$. Find

11. $g(f(-2))$

12. $f + g$

13. fg

14. $f^{-1}(x)$

15. $g(f(x))$

16. reflection of $f(x)$ over the x-axis.

17. reflection of $g(x)$ over the y-axis.

18.Find the inverse of the function. VERIFY that the function is an inverse by showing $f\left(g\left(x\right)\right)=x=g\left(f\left(x\right)\right)$

a) $f(x) = 3x - 2$

b) $h(x)=\frac{2x+4}{5-x}$

19. Joe Pearlman received a 3.5% pay raise. His salary after the raise was $37,260. What was his salary before the raise?

20. Sue invested $10,000, part at 3.6% annual interest and the balance at 7.8% annual interest. How much invested at each rate if a 1-year interest payment of $667.02.

Give the equation of the function whose graph is described.

21. The graph of $y = x^2$ is reflected across the x-axis and vertically stretched by a factor of 7.

22. The graph of $y = \sqrt{x}$ is shifted 10 units to the left. Then the graph is shifted 7 units upward.

23. The graph of y = |x| is horizontally shrunk by a factor of 1/2.

24. Simplify the expression. Express your answer without negative exponents.

$$\frac{\left(x^2 y^{-3}\right)^{-2}}{x^3 y^{-6}}$$

25. Find the general form equation for the line through the point (6,-4) and parallel to the line with the equation 5x + 3y = 7.

26. Solve by factoring:

$4x^2 - 12x = -9$

27. Solve algebraically:

$$\frac{x}{x+2} + \frac{2}{x-5} = \frac{14}{x^2 - 3x - 10}$$

28. Solve graphically:

$3x^2 + 25x > 28$