Algebra II   Name _____
Chapter 2 Review – Calculator

1. Consider the following sequence: -5, -1, 3, …

a.   Is this sequence arithmetic or geometric? How can you tell?

b.   Is 119 a term in this sequence? If so, what term number is it? If not, why not? Explain completely.

2. Consider the following sequence: 500, 100, 20, 4, …

a.   Is this sequence arithmetic or geometric? Why?

    b. Give both an explicit and recursive equation for this sequence.

3.   What is the equation for the graph at the right? Explain how you determined each number in your equation.
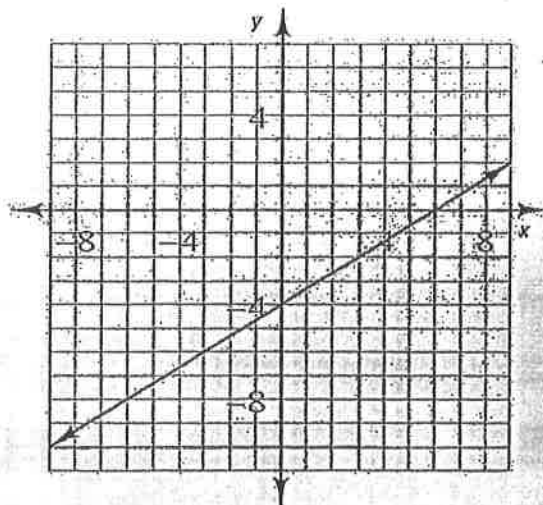
4.   Find the error(s) in the solution at right. Explain what the error(s) is/are and show how to solve the equation correctly.

$$(2x+5)-(5x+4)=6-2(x-3)$$
$$2x+5-5x\boxed{+4}=6-2x\boxed{-6}$$
$$-3x+9=-2x$$
$$9=x$$

5. Multiply each of the following expressions.
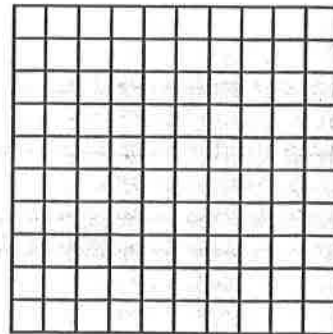
a. $2w\,(w-3)$

b. $(2x-1)\,(x+7)$

c. $-3\,(x-4)(2x-5)$

d. $(p+3)(p^2+4p-5)$

6. Solve the system and explain what the solution means in as many ways as you can.

$4x - y = -13$
$3x + 2y = 4$

7. Make a table and graph $f(x) = x^2 + 2x$

8. Is $(a+b)^2$ equivalent to $a^2 + b^2$? Why or why not?

9. A parabolically arched bridge is constructed to span a river that is 50 feet wide. The highest point of the bridge is 30 feet above the road level. Find the equation of a parabola that could model this bridge.

(must be accompanied by a diagram drawn on a labeled axes)

10. Find the distance between the points (-2, 6) and (5,10) on a coordinate plane.

11. Mike Teavee's parents want him to spend more time playing outside and have developed a rewards system for him. Every time he rides his bike, he gets 5 points. Every time he plays a video game, he loses 3 points. A bike ride takes him 15 minutes and playing a video game takes him 20 minutes. If at the end of the week Mike has 35 points and either rode his bike or played a video game for a combined total of 395 minutes, how many bike rides did he go on and how many video games did he play?

$B = $ # of Bike Rides
$V = $ # of video game sessions

10. Write an equation for the function $y = \sqrt{x}$ after it has been moved 2 units left, 5 units down, and stretched vertically by a factor of 3.

11. Write an equation for the function $y = 2^x$ after it has been moved 3 units down and flipped upside down.
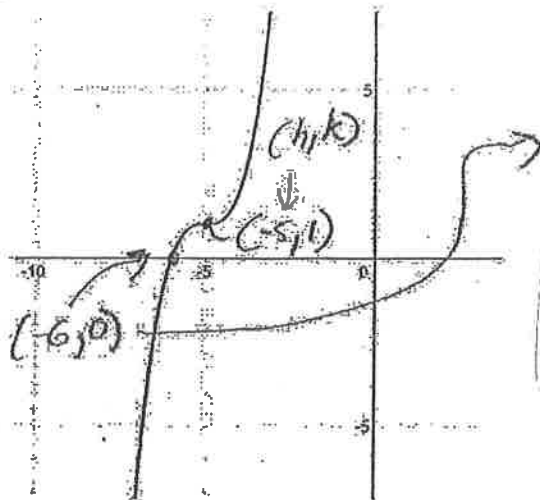
12. Write an equation for the function $y = \frac{1}{x}$ after it has been moved 8 units right.

13. Give the equation for the graphs below:
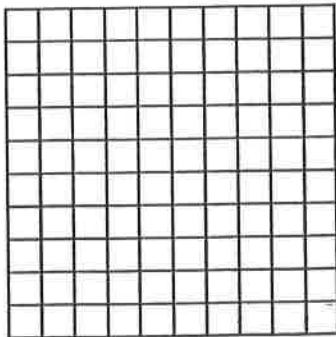
a.
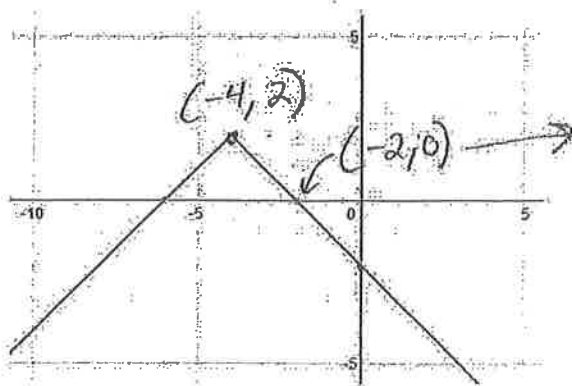
b.

14. Give the explicit and recursive formulas for the sequence 2, 7, 12, 17, 22, ...
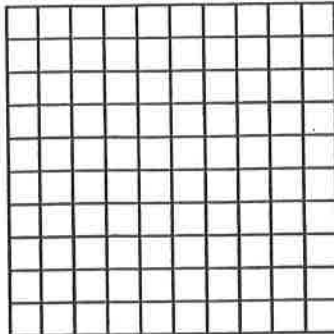
15. Give the explicit and recursive formulas for the sequence 81, 27, 9, 3, 1, ...

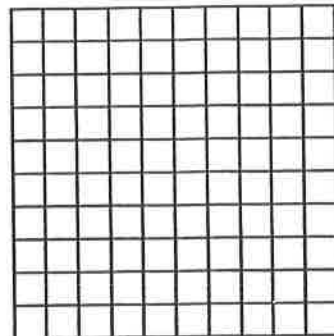4. Graph each parent function:
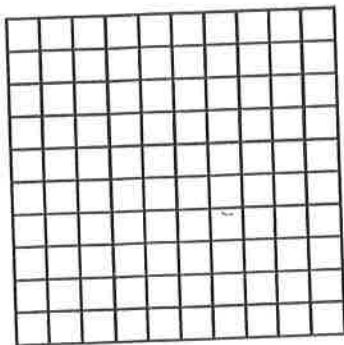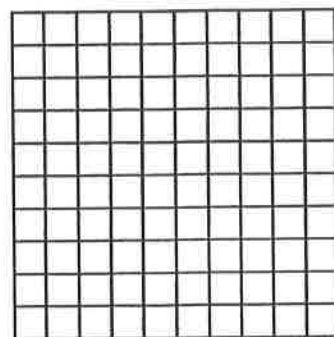   a. $y = x^2$ b. $y = \frac{1}{x}$ c. $y = \sqrt{x}$

d.
$y = 2^x$

e. $y = |x|$

5. Which of the parent functions in #4 have a domain that is NOT "all real numbers"? What is the domain? (There can be more than one function).

6. Which of the parent functions in #4 have a range that is NOT "all real numbers"? What is the range? (There can be more than one function).

7. Which of the parent functions in #4 have asymptotes? What are the asymptotes? (There can be more than one function).

8. Which of the parent functions in #4 have x-intercepts? What are the x-intercepts? (There can be more than one function).

9. Which of the parent functions in #4 have y-intercepts? What are the x-intercepts? (There can be more than one function).