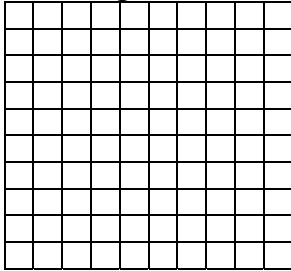
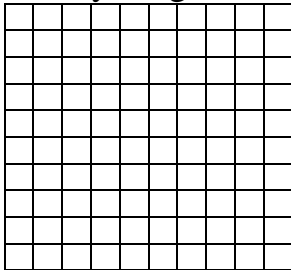


Review
College Algebra
Functions

1. Determine the intervals over which this function is increasing:
or decreasing:



2. a. Use your graphing calculator to graph this function;
 $y = 2x^2$
Show a very rough sketch

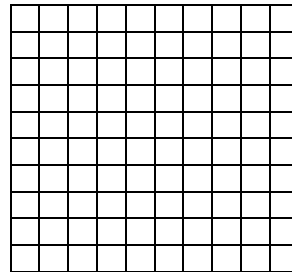


- b. Use this graph to determine whether this graph has x-axis symmetry, y-axis symmetry and/or origin symmetry:

3. Show the test for origin symmetry for this function.
 $y = x + 3$

Does the function have it?

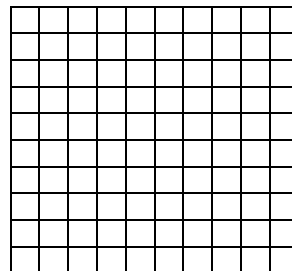
Now graph this function on your graphing calculator. Show a very rough sketch here:



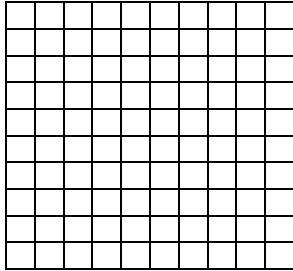
Does the graph agree with your findings above?

4. $f(x) = x^4$
Write up, down, right, or left by each function, explaining the change from the graph above to it.
a. $f(x) = x^4 - 4$
b. $f(x) = (x-4)^4$

5. Here is a graph of $y = f(x)$.
On the same axes, show $y = -f(x)$



6. Graph by hand or with calculator $y = 2 - \sqrt{x}$



Name the domain and range of the above function.

7. Solve for x:

$$|x+2| = -5$$

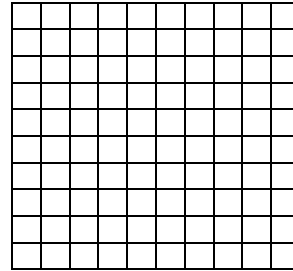
8. Solve for x: $|2x+3| \leq 7$

9. Solve for x: $|x-4| > 9$

10. $|2x| = 8$

11. $|x+1| + 3 \geq 6$

12. Graph $y_1 = |x+4|$ and $y_2 = 5$ on your graphing calculator. Show a rough sketch here.



From the graph, state the solutions in interval notation of these:

a. $|x+4| > 5$

b. $|x+4| < 5$

13. Solve analytically. Show work. (Optional: check graphically)

$$|3x+5| = |2x-3|$$

14. $f(x) = x^2 - 4$
 $g(x) = x - 1$

a. Find $(f-g)(x)$.

b. Find $(fg)(3)$.

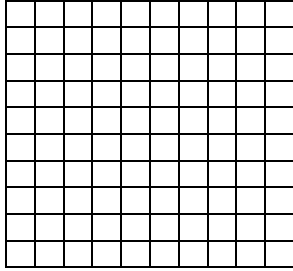
15-16. $f(x) = x^2 + 5$
 $g(x) = x - 2$

15. Find $(f \circ g)(x)$.

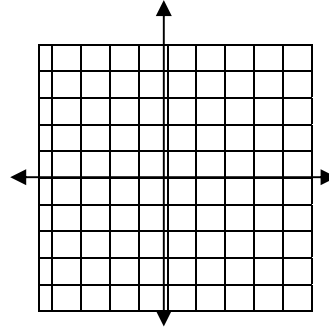
16. Find $(g \circ f)(3)$ or $g(f(3))$.

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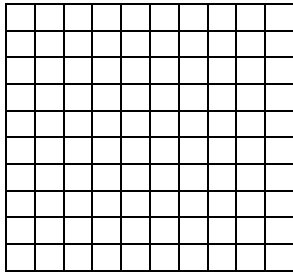
17. Graph $y = -|x-3|$.



$$20. f(x) = \begin{cases} x-2, & \text{if } x \leq 1 \\ 2x-3, & \text{if } x > 1 \end{cases}$$



18. Graph. $y = x^3$ and $y = 3x^3$. Mark which is which.



21. Tell if these are symmetric to the x-axis, y-axis, origin or none of these.

a. $x = y^2 + 2$

b. $y = x^3 + x$

19-20 Graph these piecewise-defined functions.

$$19. f(x) = \begin{cases} x+2, & \text{if } x < 0 \\ 2x-1, & \text{if } x \geq 0 \end{cases}$$

