

The majority of these questions were ones you encountered last year in Algebra 2. This packet is an overview of concepts learned in Algebra 2 that will be helpful for PreCalculus. You should try every question in this packet as well as do the suggested problems in the book listed on the assignment sheet in preparation for your chapter 1 test on September 17th.

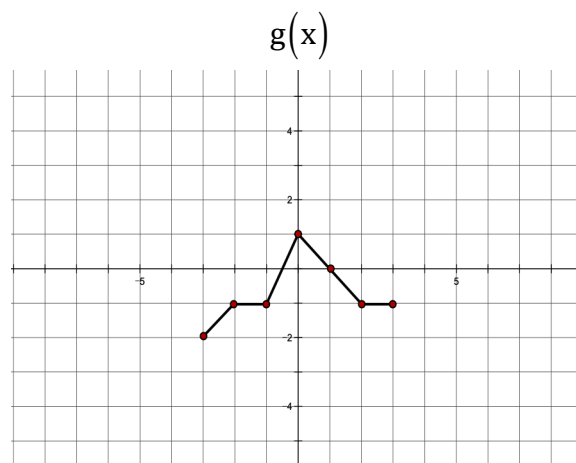
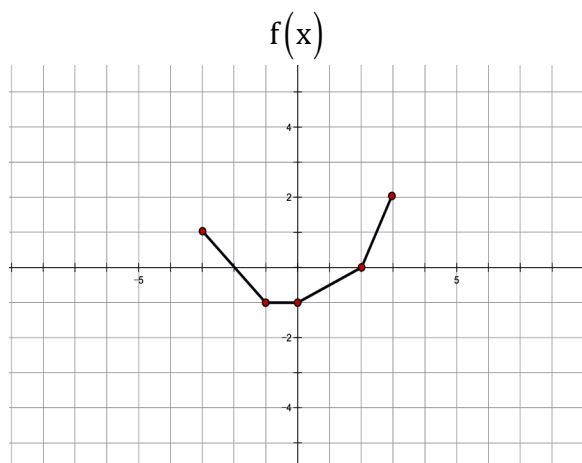
- 1) What Quadrant is (x,y) located in if: $y > 0$ & $x < -4$

For numbers 2 – 4 use: If $f(-2)=5$ & $f(1)=-10$

- 2) What is the linear function that contains the two values?

- 3) What is the distance between the two points?

For numbers 4 – 7, use the graph of $f(x)$ and $g(x)$ below:



- 4) Calculate $(f \circ g)(2)$

- 5) Calculate $(f + g)(-2)$

- 6) Calculate $(f \circ f)(3)$

- 7) Calculate $(f / g)(2)$

If $f(x) = 2x^3 - 3$

8) What type of symmetry does $f(x)$ have?

9) Is function $f(x)$ even, odd or neither?

If $f(x) = \frac{1}{3}|x| + 3$

10) What type of symmetry does $f(x)$ have?

11) Is function $f(x)$ even, odd or neither?

12) A circle has a radius of 6 and a center at $(4, -7)$. What is the equation for the circle?

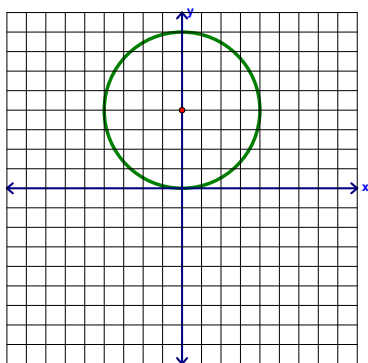
13) Center: $(-11, -8)$, Radius: 4

14) Center: $(-6, -15)$, Radius: $\sqrt{5}$

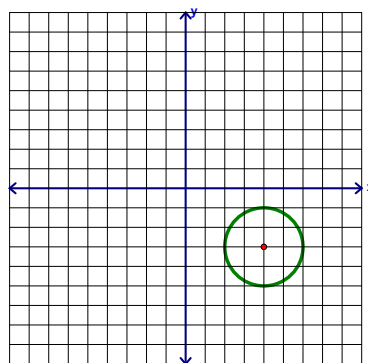
15) $(x-16)^2 + (y-6)^2 = 1$ translated 4 left, 2 up

16) $(x+5)^2 + (y+7)^2 = 36$ translated 5 left, 4 down

17) Write the equation of the circle in standard form



18) Write the equation of the circle in standard form



19) Use the technique of completing the square to find the standard form of the equation of this circle:

$$x^2 - 12x + 15 + y^2 + 8y - 1 = 20$$

Standard form: _____ center: _____ radius: _____

Use the information provided to write the standard form of the equation of each circle:

20) $8x + x^2 - 2y = 64 - y^2$

21) $137 + 6y = -y^2 - x^2 - 24x$

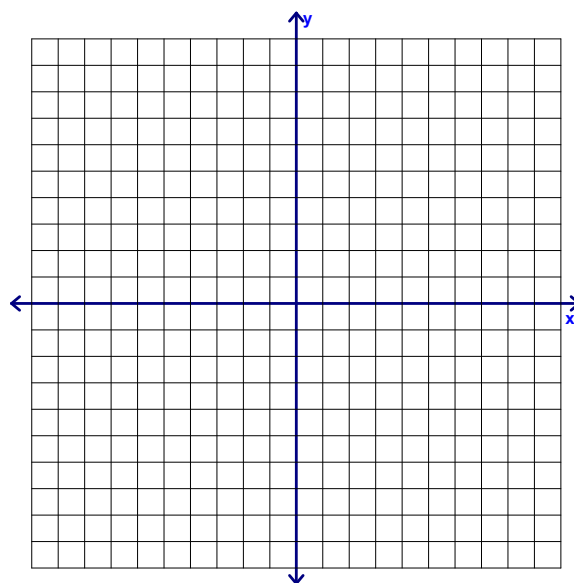
22) $x^2 + y^2 + 14x - 12y + 4 = 0$

23) $y^2 + 2x + x^2 = 24y - 120$

24) $x^2 + 2x + y^2 = 55 + 10y$

25) $8x + 32y + y^2 = 263 - x^2$

26) Sketch the best graph for $g(x) = (x - 5)^2 - 3$. Be sure to indicate at least 3 critical points!



For numbers 27 & 28, Use the following: **IF:** $f(x) = -3(x+2)^2 - 1$

27) What is the value of $f(-4)$?

28) Describe the transformation compared to $f(x) = x^2$.

Use the following function for numbers 29 – 33: $f(x) = \sqrt{x+2} + 3$

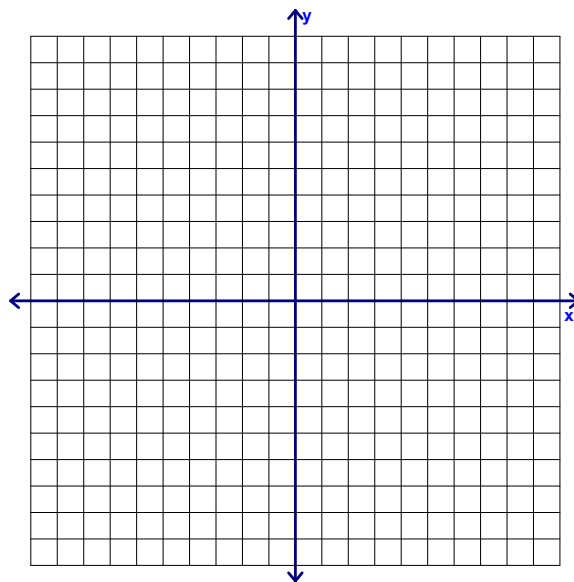
29) Sketch the best graph for $f(x)$

30) What is the x-intercept?

31) What is the y-intercept?

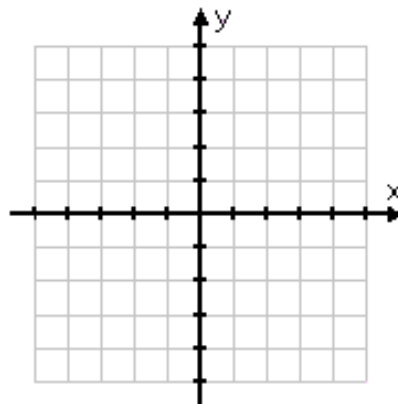
32) What is the domain?

33) What is the range



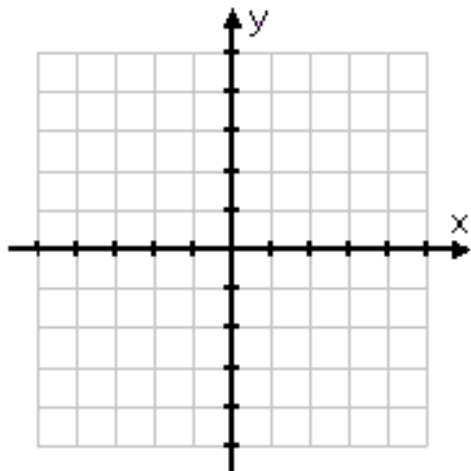
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34) Graph the following “parent” function. $f(x) = x^2$

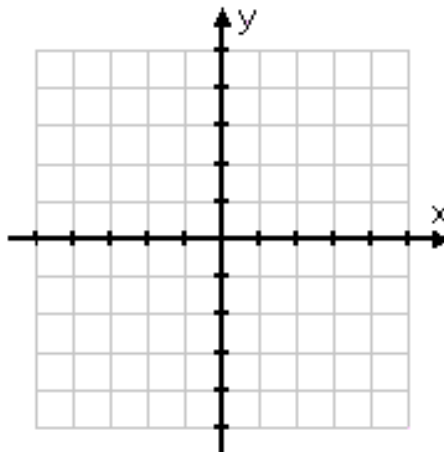


Now graph the following functions, which are transformations of the parent function above. **HINT:** In the first problem, $F(x) = f(x) - 5$ is the same as $F(x) = x^2 - 5$. In the second problem, $G(x) = f(x + 2)$ is the same as $G(x) = (x + 2)^2$, and so on.

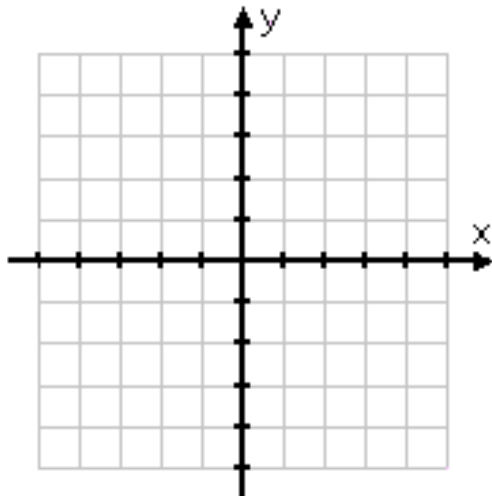
a. $F(x) = f(x) - 5$



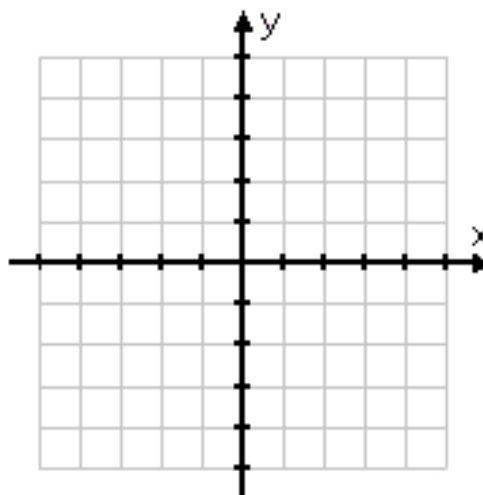
b. $G(x) = f(x + 2)$



c. $P(x) = f(x - 3) + 1$

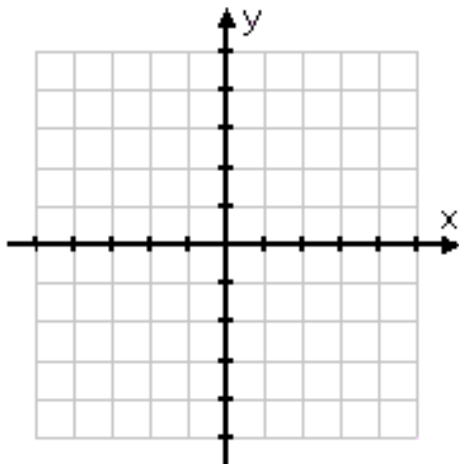


d. $K(x) = -f(x)$

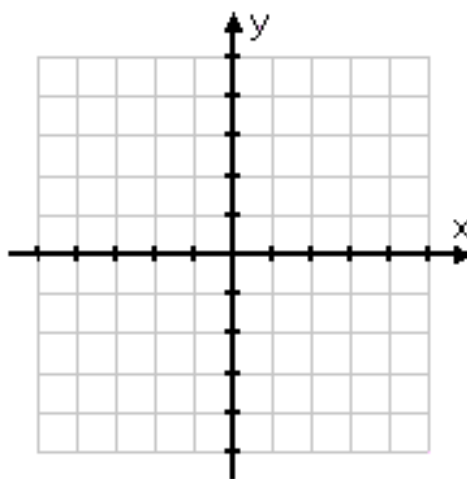


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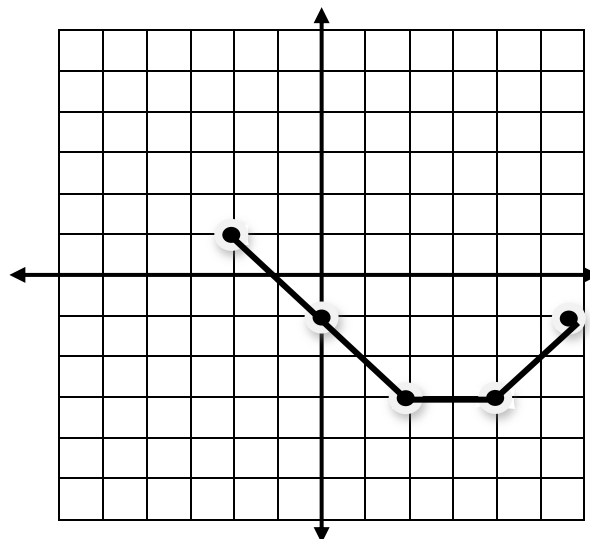
e. $Q(x) = -f(x) + 2$



f. $H(x) = -f(x-3) + 2$

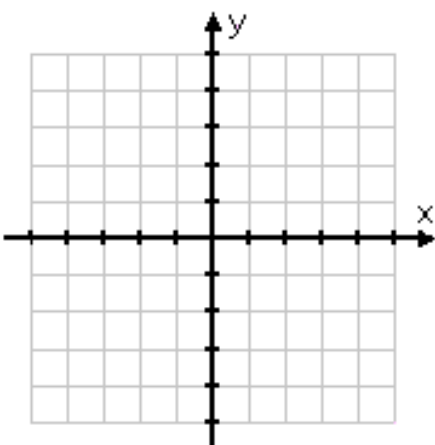


35) Graph the following “parent” function. $f(x) =$

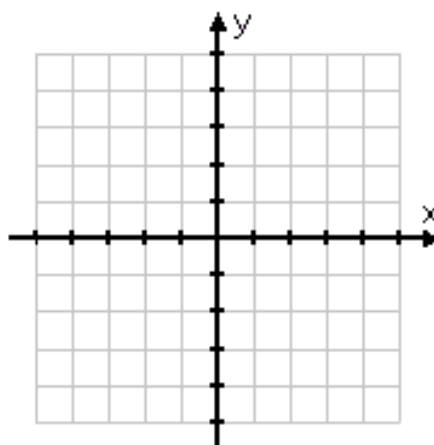


Now graph the following functions which are transformations of the parent function above.

a. $g(x) = f(2x)$

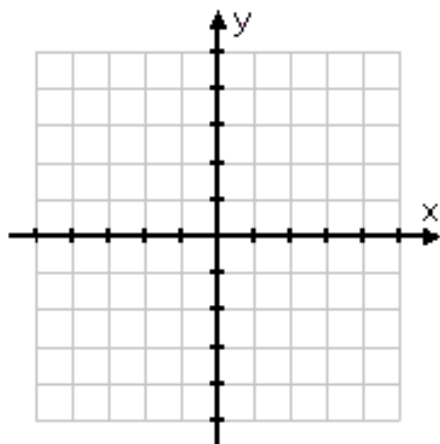


b. $h(x) = 2f(x)$

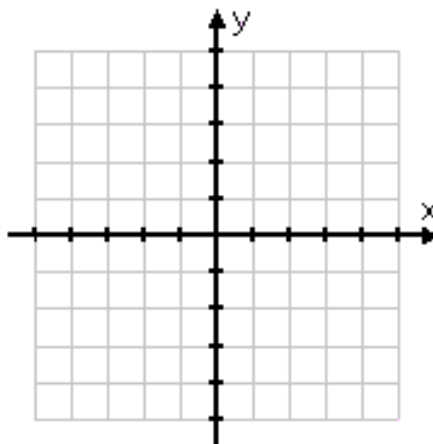


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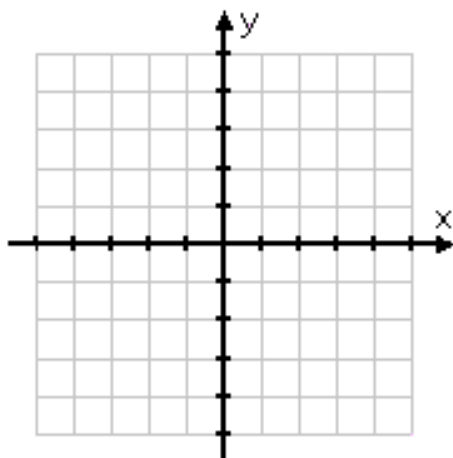
c. $P(x) = f\left(\frac{1}{2}x\right)$



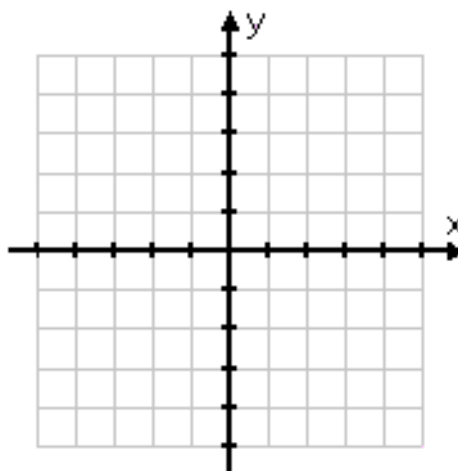
d. $Q(x) = \frac{1}{2}f(x)$



e. $g(x) = f(2x) + 1$



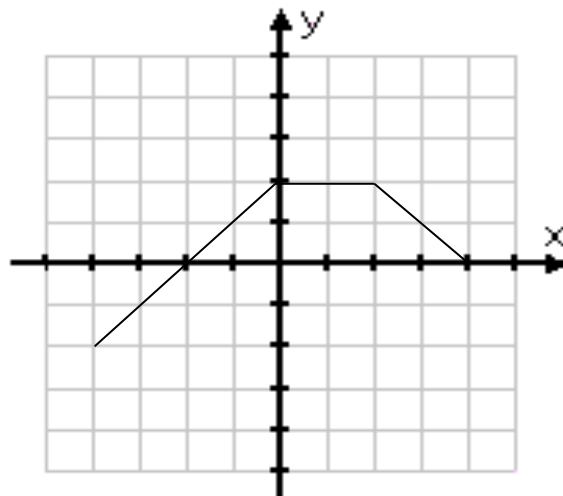
f. $h(x) = 2f(x-3) - 4$



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- 36) Given the following function, graph each of the given transformations.(hint: Write out in words 1st, what is the transformation on the parent function?)

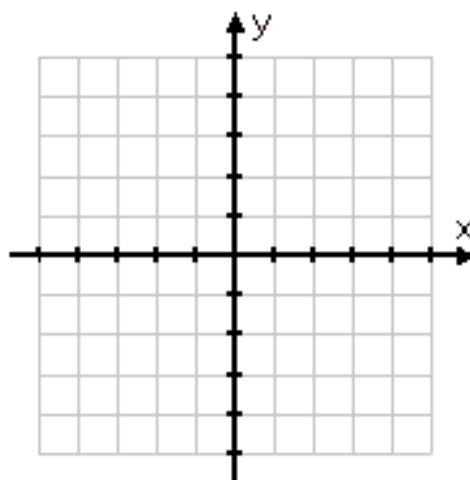
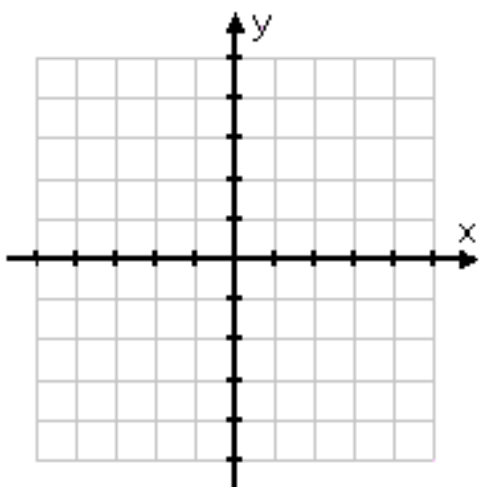
Also, write some key ordered pairs on the original parent graph first here :



Now for a through i, graph the transformations of the parent graph above.

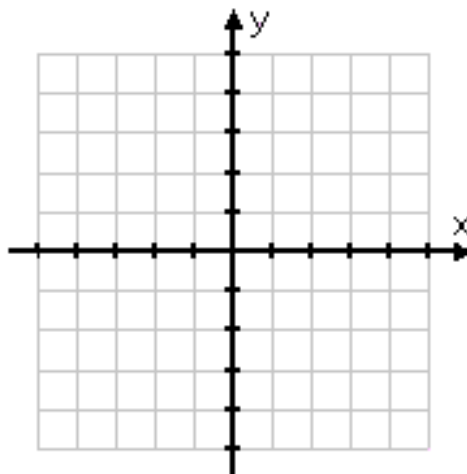
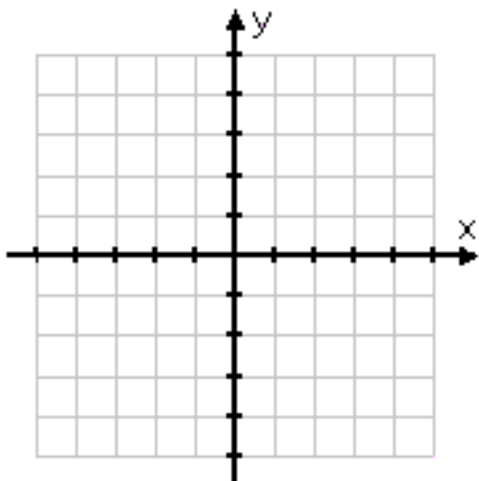
a. $F(x) = f(x) + 3$

b. $G(x) = f(x + 2)$



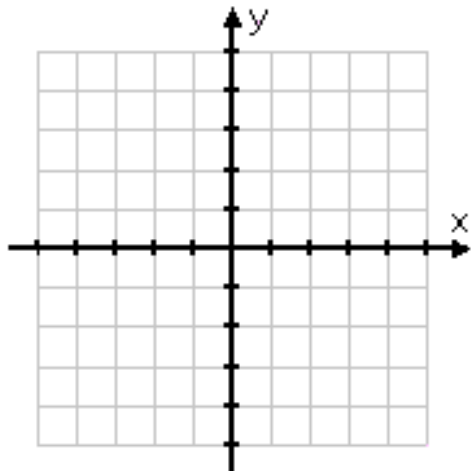
c. $k(x) = f(x - 2) + 1$

d. $M(x) = -f(x)$

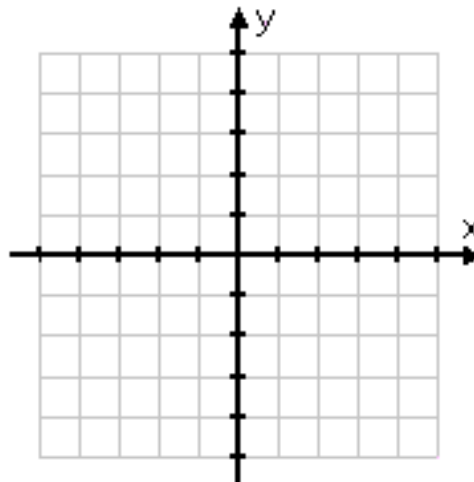


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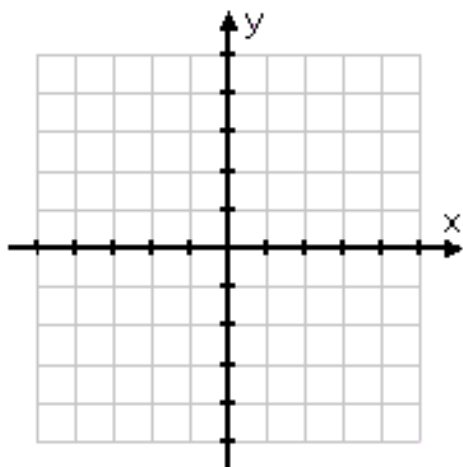
e. $D(x) = f(-x)$



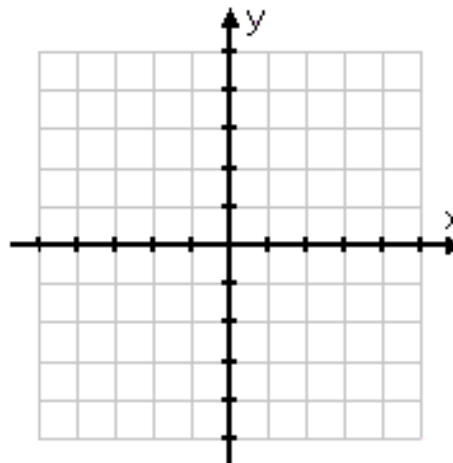
f. $Q(x) = -f(x) - 2$



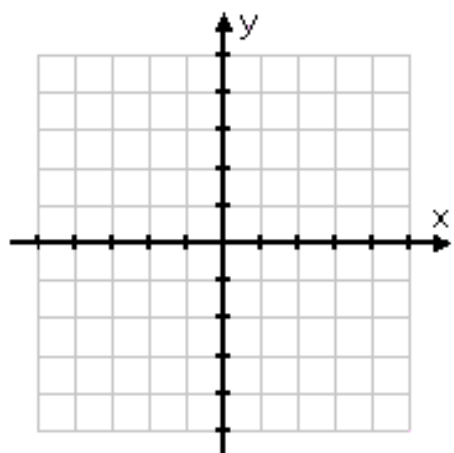
g. $L(x) = f(-x) + 3$



h. $j(x) = -f(x+1)$

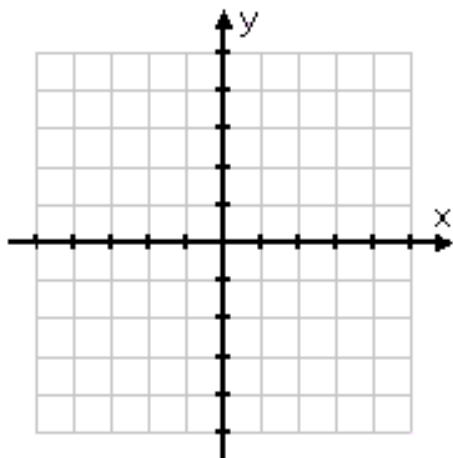


i. $j(x) = -f(x-2) - 1$ (a fun one!! You got this!! Write out the NEW ordered pairs first)

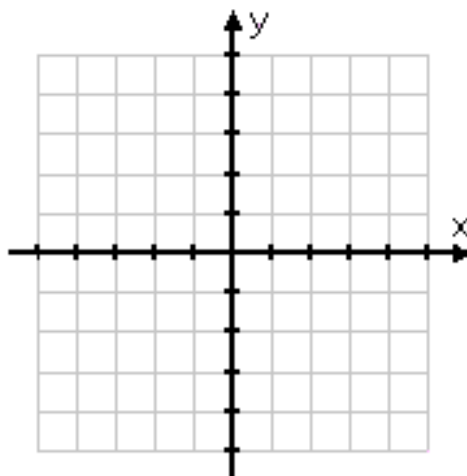


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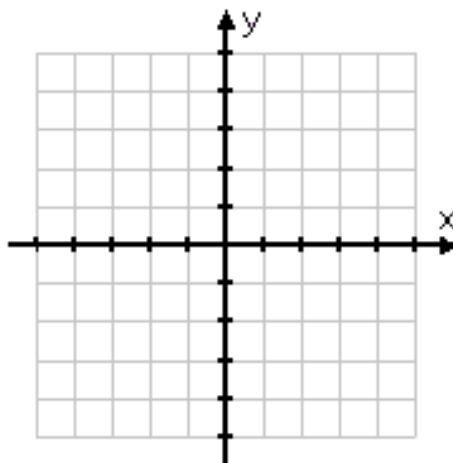
j. $g(x) = f(2x)$



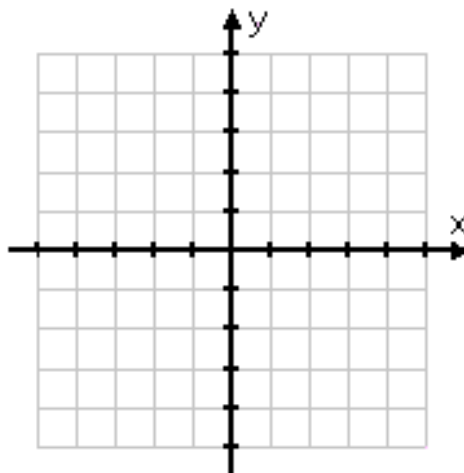
k. $h(x) = 2f(x)$



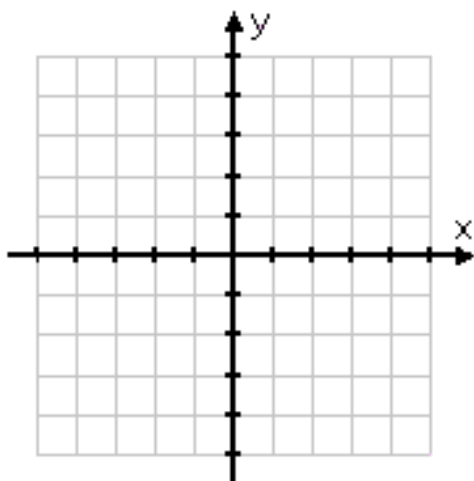
l. $P(x) = f\left(\frac{1}{2}x\right)$



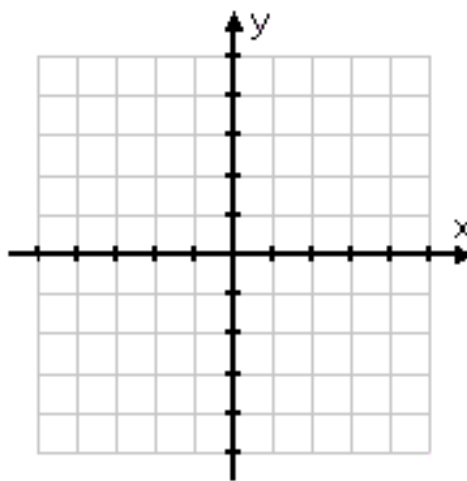
m. $Q(x) = \frac{1}{2}f(x)$



n. $L(x) = -2f(x)$

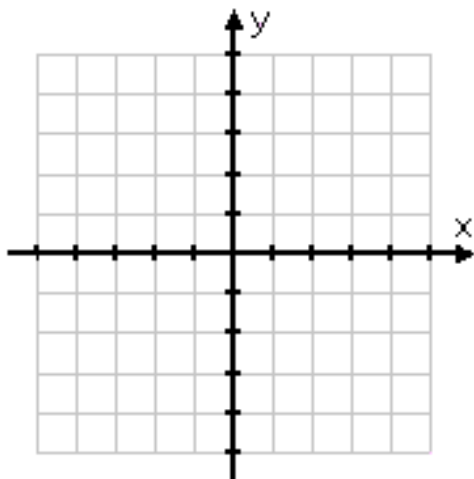


o. $j(x) = \frac{1}{2}f(x+3)$

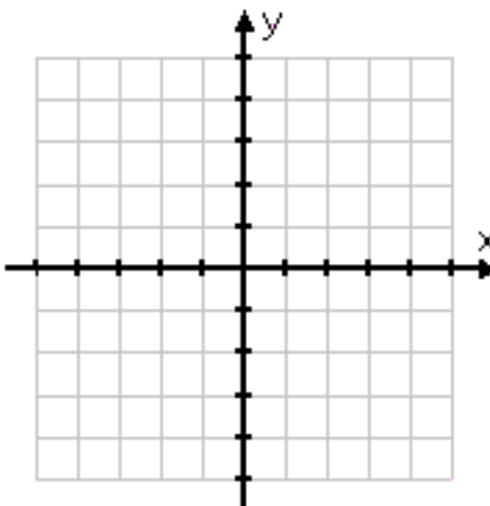


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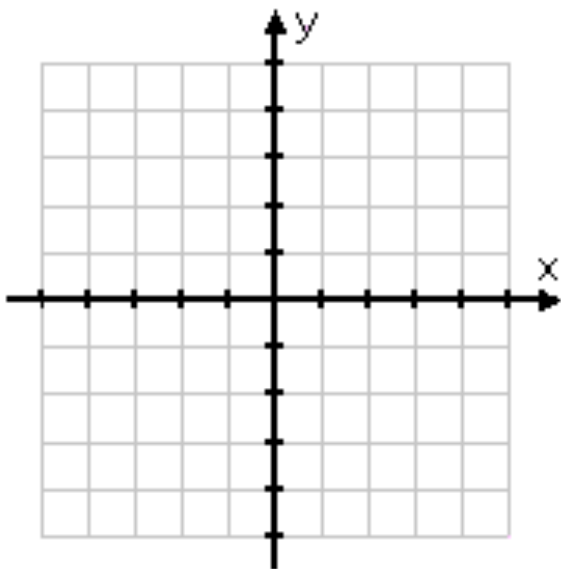
p. $M(x) = 2f(-x)$



q. $M(x) = f(2x+1)+2$



r. $k(x) = \frac{1}{2}f(x-2)+1$ (Be sure to write out all the NEW ordered pairs first!)



Be sure to know how to do every problem in this packet prior to the Chapter 1 Test. Much of it is review, but ask questions to be sure you remember everything!