

1. Using the graph to the right, answer the following questions.

a. $F(5) = 6$ b. $F(4) = 4$
 c. $F(-2) = 2$ and $F(3) = 2$

~~What does this tell us about F(x)?~~

d. What is the domain of F(x)? $(-4, \infty)$ L → R

e. What is the range of F(x)? $(-3, 6)$

f. What is the y intercept of F(x)? $(0, 4)$

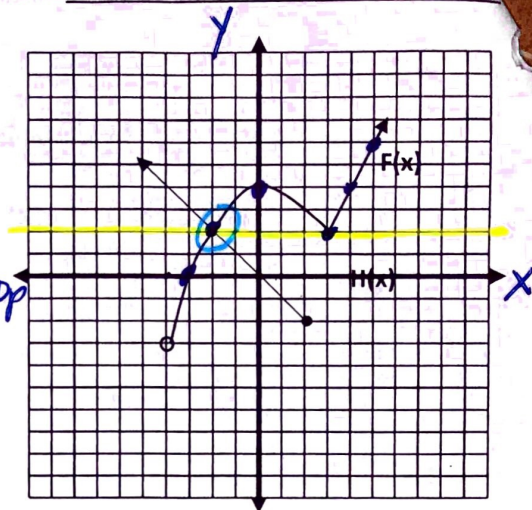
g. What are the roots of F(x)? $(-3, 0)$ Bottom → top

h. For what x value does $F(x) = H(x)$? $x = -2$

i. $F(H(-4)) = 4$ j. $H(F(3)) = -2$

$F(4) = 4$
 x y

$H(2)$
 x



2. Write the equation for a function, F(x), that has a reflection in the x axis, a vertical stretch of 5, a horizontal compression of 1/2, and is translated left 7 and up 3.

$-5 F^*(2(x+7)) + 3$

3. Graph the following functions using your knowledge of transformational graphing and piecewise functions on a separate graph paper. State the domain and range.

a. $y = -2|x - 3| + 4$
 ~ refl. over x
 ~ vert. stretch 2
 ~ right 3 ~ up 4

b. $y = \sqrt{2(x+1)} - 3$
 ~ horiz. comp. by 1/2
 ~ left 1 ~ down 3

c. $y = 2(x-1)^2 + 3$
 ~ vert. stretch 2
 ~ right 1 ~ up 3

d. $f(x) = \begin{cases} -2x - 2, & x < -3 \\ (x+1)^2 - 2, & x \geq -3 \end{cases}$ left right

4. Given $h(x) = -2x^2 - x$ and $g(x) = 5x$, find the following.

a. $h(-5) = -45$

b. $g(-4) = -20$

c. $h(4a) = -32a^2 - 4a$

$-2(-5)^2 - (-5)$
 $-2(25) + 5 = -50 + 5$

$\frac{5x}{5x} = \frac{-20}{5}$
 $x = -4$

$-2(4a)^2 - (4a)$
 $-2(16a^2) - 4a$

d. $g(m-2) = 5m - 10$

e. $g(3-2x) = 15 - 10x$

f. $h(g(3)) = -465$

$5(m-2)$

$5(3-2x)$

$h(5(3))$

$h(15) = -2(225) - 15$

$-2(15)^2 - 15$

g. $g(h(-2)) = -30$

h. $h(g(2)) = -210$

i. $g(h(5)) = -275$

$g(-6) = 5(-6)$
 $g(-2(-2)^2 - 2)$

5. What is the difference between an even function and an odd function? Give 2 examples of parent functions that are even functions. Give 2 examples of parent functions that are odd functions.

even - symm. with y-axis
 odd = symm. with origin

$y = |x|$ / $y = x^2$
 $y = x^3$ / $\sqrt[3]{x} = y$

6. Identify the type of function below (exponential, linear, absolute value, quadratic or square root).

a. $y = 2x - 5$ b. $y = 3^{x-1} + 2$ c. $y = -|4 - x|$ d. $y = \sqrt{3x + 4}$ e. $y = x^2 - 4x - 2$

linear exp. abs. value square root quadratic

7. Solve each of the following:

a. $2|x + 3| - 7 = 7$

$2|x + 3| = 14$
 $|x + 3| = 7$

$|x + 3| = 7$

$x + 3 = 7$ or $x + 3 = -7$
 $x = 4$ or $x = -10$

c. $|x - 3| - 4 \leq 10$

$|x - 3| \leq 14$

$x - 3 \leq 14$ and $x - 3 \geq -14$

$x \leq 17$ and $x \geq -11$

$= > > \text{OR}$
 $< \leq \text{AND}$

b. $|3x - 1| + 2 > 10$

$|3x - 1| > 8$

$3x - 1 > 8$ or $3x - 1 < -8$

$3x > 9$
 $x > 3$

or $3x < -7$
 $x < -\frac{7}{3}$

8. $f(3) =$

9. $f(-1/2) =$

 -1

10. $f(-3) =$

 1

11. $f(1) =$

 -4

12. $2f(0) - 8f(2) + 3f(-5) =$

 -1

$2(-2) - 8(0) + 3(1)$

$-4 - 0 + 3$

