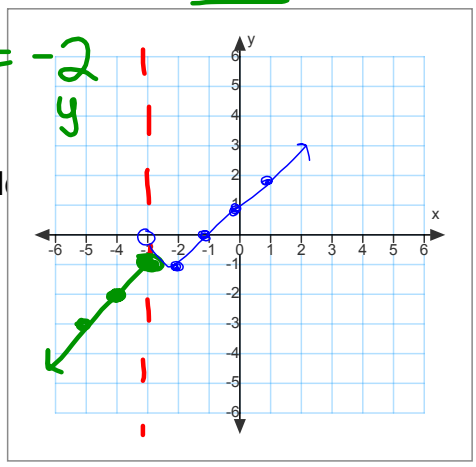
Warm up

1. Graph the piecewise function $f(x) = \begin{cases} |x+2|-1 & x > -3 \\ x+2, & x \le -3 \end{cases}$

$f(-4) = -4+2 = -2$

x y



2. Is $f(x) = 2x^3 + 5$ even, od

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

$-2x^3 + 5$

neither

3. Write an equation for a cubic function that has been reflected over the x-axis, vertically shrunk by a factor of 3, moved left 2 and up 7.

$-\frac{1}{3}(x+2)^3 + 7$

4. If (-1,3) is a point on f(x) find its transformation on $-2f(3x-9)-4$.

$-2f(3(x-3))-4$

Right 3

down 4

reflect x

v. streten

H. shrink

$(-1, 3)$

$(-1, -3)$

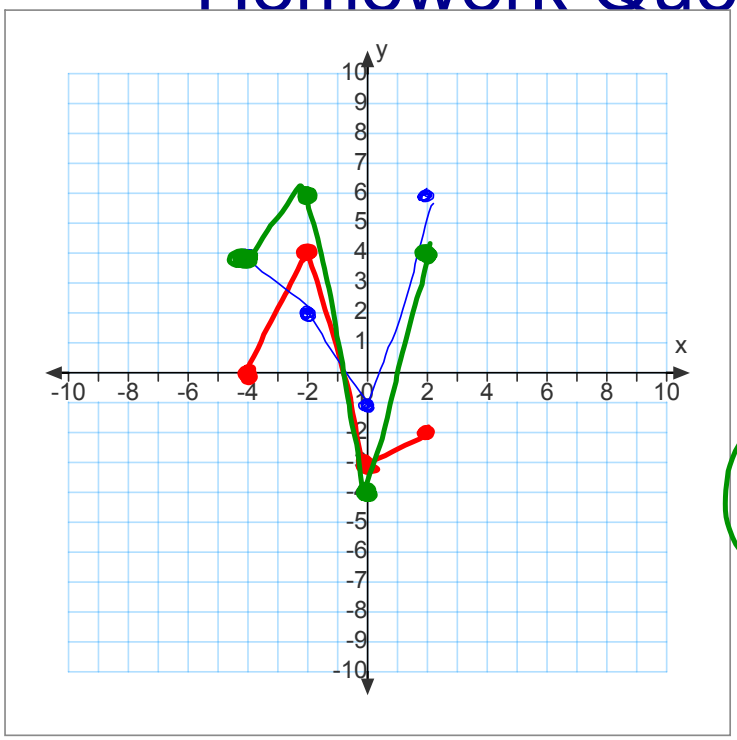
$(-1, -6)$

$(-1/3, -6)$

$(2\frac{2}{3}, -10)$

GO COUGARS!

Homework Questions



$f(x)$

$g(x)$

$(f+g)(x)$

59

$f(x)=\sqrt{x+6}$

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

$f \circ g(x)$

$g \circ f(x)$

$\sqrt{(x^2-5)+6}$

$(\sqrt{x+6})^2-5$

$\sqrt{x^2+1}$

$x+6-5$

$x+1$

1.5 Combinations and Compositions of Functions

Domains of Compositions

Graphical Combinations and Compositions

When we are finding the domain of a conposition we need to consider the domains of each function.

$f(x) = \sqrt{x+3}$

D: $[-3, \infty)$

$g(x) = 4x^2 + 5$

D: $(-\infty, \infty)$

$g \circ f$

$4(\sqrt{x+3})^2 + 5$

$4x + 17$

$[-3, \infty)$

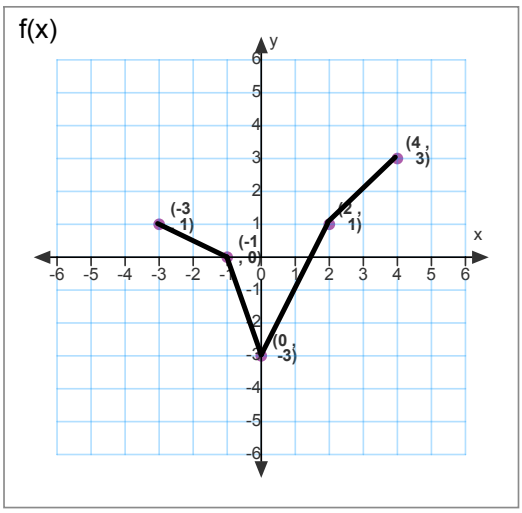
$f \circ g(x)$

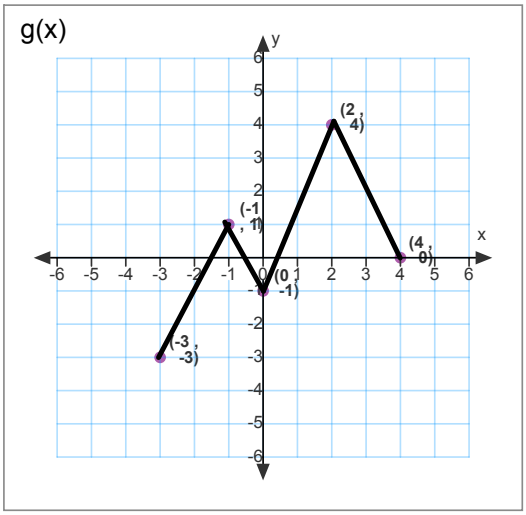
$\sqrt{(4x^2+5)+3}$

$\sqrt{4x^2+8}$

D: $(-\infty, \infty)$

Graphical Combinations and Compositions of Functions





find a. $(f+g)(2)$ b. $\frac{f}{g}(-1)$ c. $f \circ g(4)$ d. $g \circ f(0)$

$f(2) + g(2)$

$1 + 4 = 5$

$\frac{0}{1} = 0$

$f(g(4))$

$f(0) = -3$

HOMEWORK

p 58 3, 8, 26, 39-43 odd, 49, 58, 61-64 all

$(x+1)$ $(x+2)$

$-5(x+1)^2-3(x+1)+1$

$x \neq -2$

$x \geq \frac{3}{2}$ $\left[\frac{3}{2}, \infty\right)$

$3\left(-\frac{1}{3}x-5\right)^3+3$

$3\left(-\frac{1}{3}(x+15)\right)^3+3$