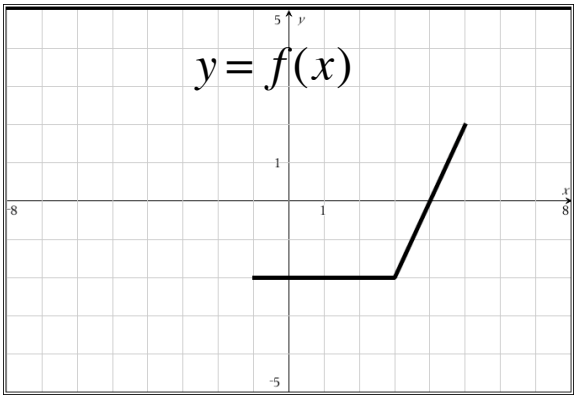
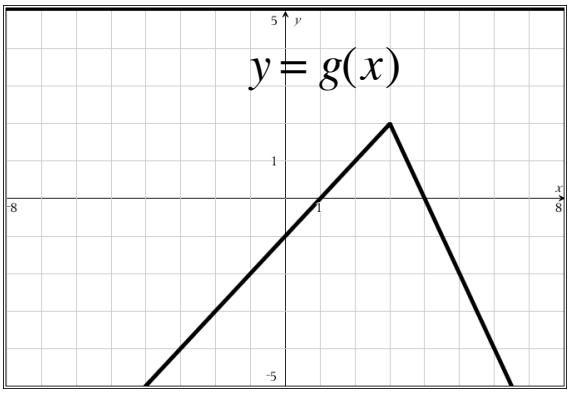
HAT 11/6/17
Chapter 6 Practice



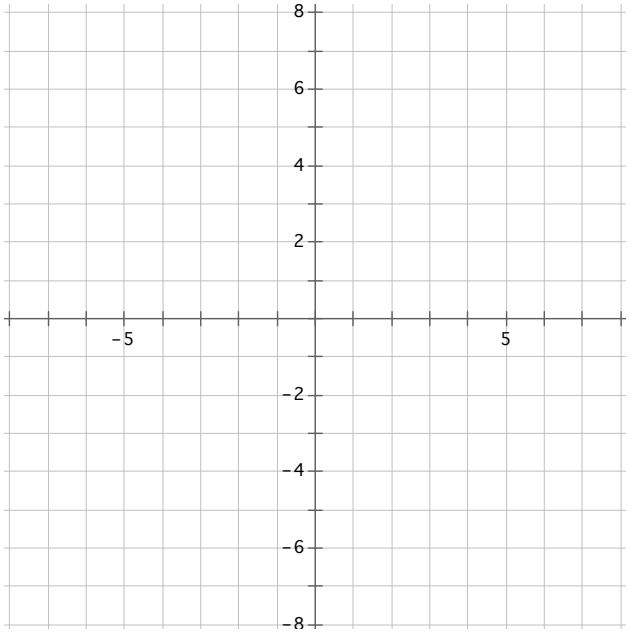


1) Find the value of

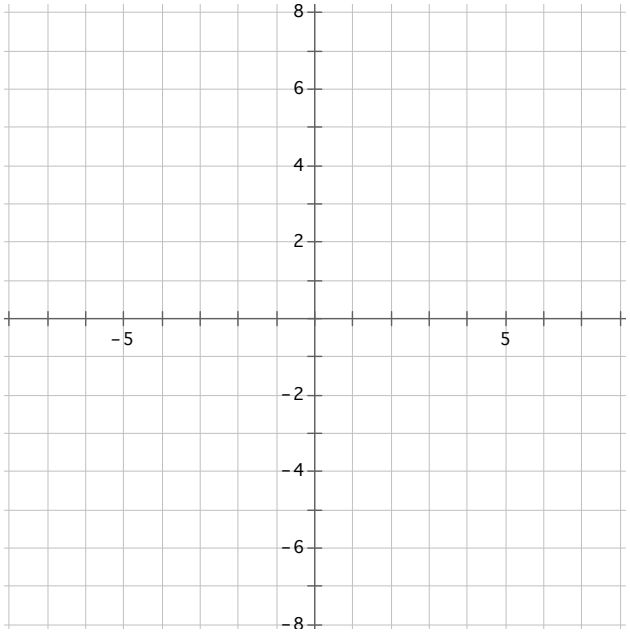
a) $(f+g)(0)$ b) $\left(\frac{f}{g}\right)(3)$ c) $(g \circ f)(4)$

2) Without graphing the inverse of $y = g(x)$, how can you determine if the inverse is a function?

3) Graph $y = (f \cdot g)(x)$

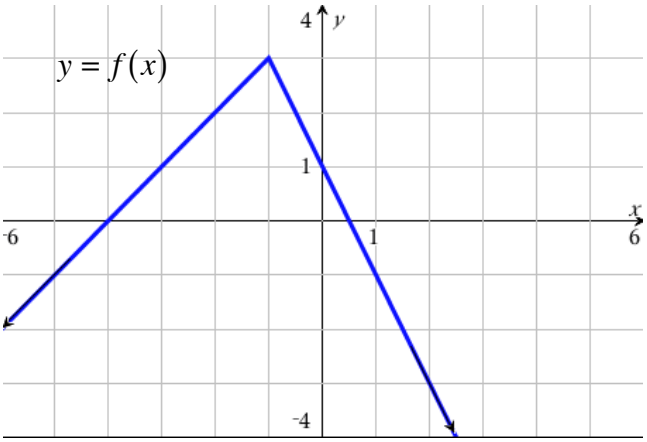


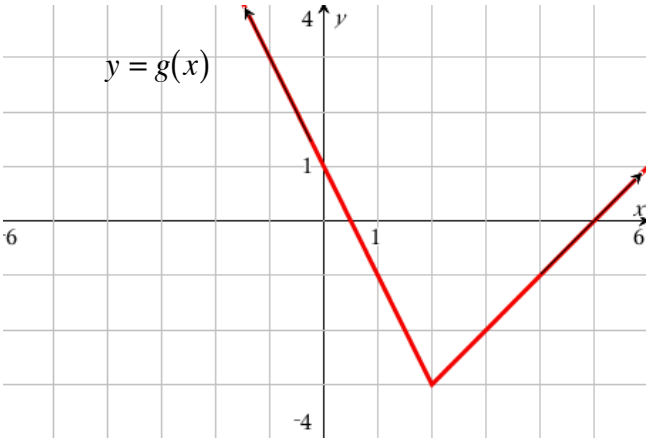
4) Show the INVERSE of the graph in #3.



HAT 11/6/17
Chapter 6 Practice

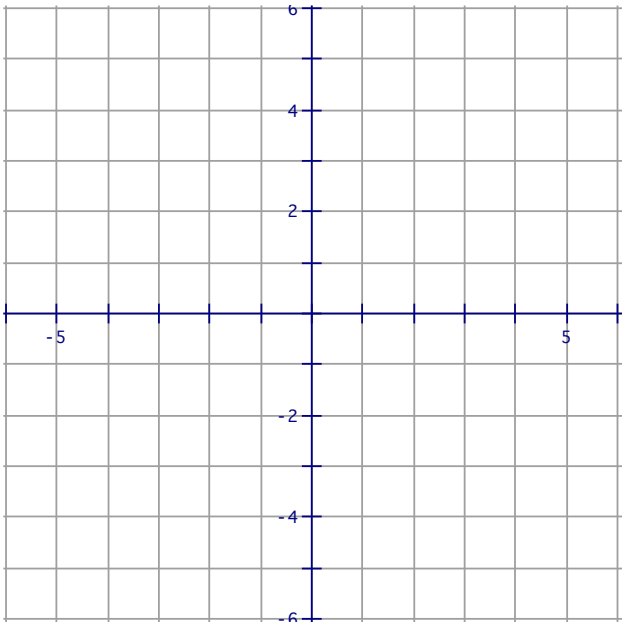
5) These are the graphs of $y = f(x)$ and $y = g(x)$.

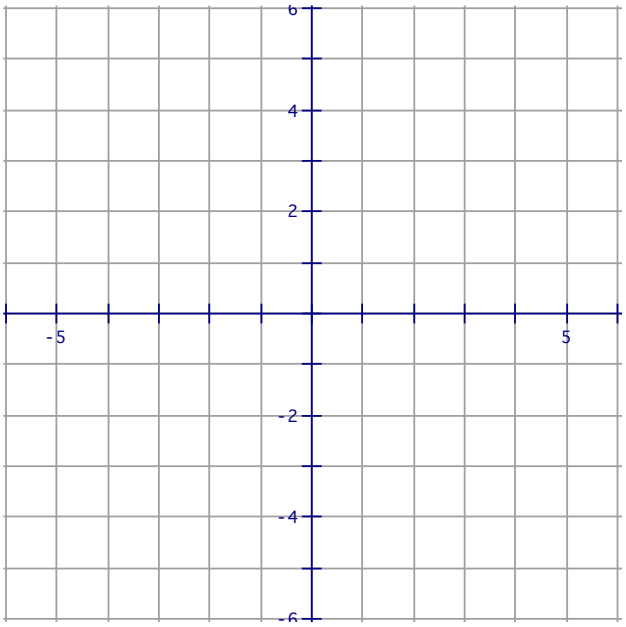




a) Graph $y = (f - g)(x)$.
State the domain and range.

b) Graph $y = (f \circ g)(x)$.
State the domain and range.





c) Without graphing, determine if the graphs of the inverses of $y = (f - g)(x)$ and $y = (f \circ g)(x)$ are functions. Explain how you know. On the same grids, use colored pencil to show the graph of the inverse of $y = (f - g)(x)$ and the graph of the inverse of $y = (f \circ g)(x)$.

HAT 11/6/17
Chapter 6 Practice

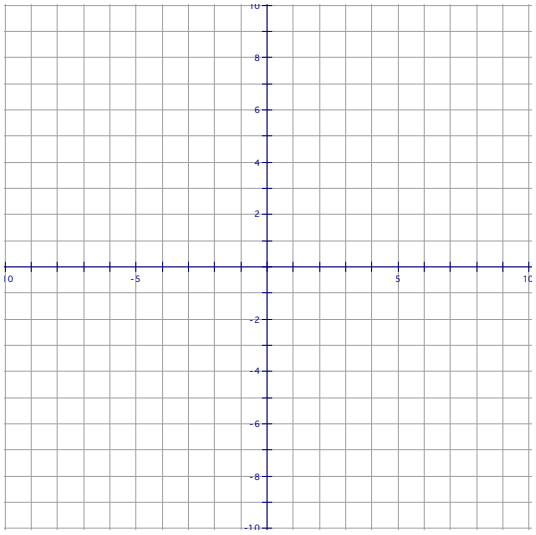
6) Given $f(x)=\{(1,\ -5),\ (3,\ -5),\ (0,\ -2)\}$ and $g(x)=\{(6,\ 1),\ (-2,\ 0),\ (-5,\ -3)\}$,

a) Find $(f\circ g)(x)$.
State the domain and range.

b) Find $(g\circ f)(x)$.
State the domain and range.

7) Given $f(x)=4-x^2$ and $g(x)=\sqrt{x}$,

a) Graph $y=f(x)$.



b) Restrict the domain of $y=f(x)$ so the inverse will be a function.

c) Find the equation of $y=f^{-1}(x)$.

d) On the same axes, graph $y=f^{-1}(x)$.

e) Find $(f\circ g)(x)$.
State the domain and range .
(Be very thoughtful... this is tricky!)

f) Find $(g\circ f)(x)$.
State the domain and range.
(Be very thoughtful... this is tricky!)

HAT 11/6/17
Chapter 6 Practice

8) Simplify.

a) $\sqrt{\frac{8x^3}{45y^5}}$

b) $\sqrt[4]{\frac{8}{9a^3}}$

c) $5\sqrt{72}+\sqrt{75}-\sqrt{288}$

d) $\left(\sqrt[3]{8}-\sqrt[3]{x}\right)\left(\sqrt[3]{8^2}+\sqrt[3]{8x}+\sqrt[3]{x^2}\right)$

e) $\left(-27x^4y^5\right)^{\frac{2}{3}}$

f) $\frac{a\sqrt[3]{b^4}}{\sqrt{ab^3}}$

HAT 11/6/17
Chapter 6 Practice

g) $\sqrt[3]{-0.027a^6b^8}$

h) $\dfrac{n^{\frac{1}{3}}}{n^{\frac{4}{3}} \cdot n^{\frac{2}{3}}}$

i) $\sqrt[4]{16w^4v^8}$

j) $\dfrac{2z^{\frac{1}{2}}}{z^{\frac{1}{2}} - 1}$

k) $\sqrt[4]{6} \cdot 3\sqrt[4]{6}$

HAT 11/6/17
Chapter 6 Practice

9) Solve.

a. $\sqrt{2x-3} = -2 + \sqrt{4x+1}$

b. $\sqrt{-5-6x} = -5 - \sqrt{-5-x}$

c. $4 - (1-7x)^{\frac{1}{3}} = 0$

d. $12 + \sqrt{2x-1} = 4$

e. $\sqrt[4]{7x-2} + 12 = 7$

f. $\sqrt{9x-11} = x+1$

HAT 11/6/17
Chapter 6 Practice

g. $505 = -7 + (2x+10)^{\frac{3}{2}}$

h. $-\frac{1535}{256} = (3x+1)^{-\frac{4}{3}} - 6$

i. $4 - \sqrt{5y-10} \le -1$

j. $\sqrt{2d+1} + \sqrt{d} \le 5$

k. $\sqrt{x+1} \le \sqrt{2x-7}$