

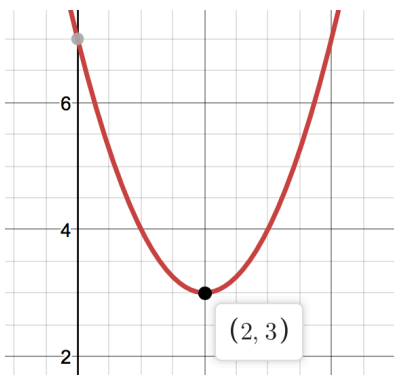


Functions 1: Functions and their inverse

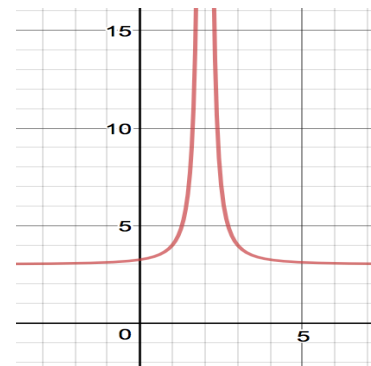
Name.....

1) Find the domain and range of the following functions:

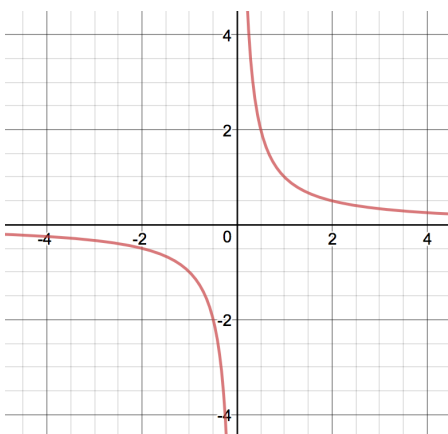
(a)



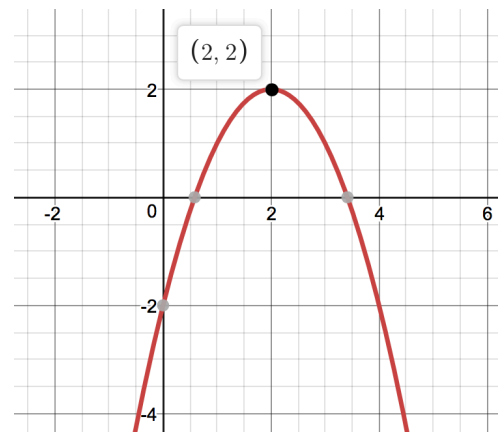
(b)



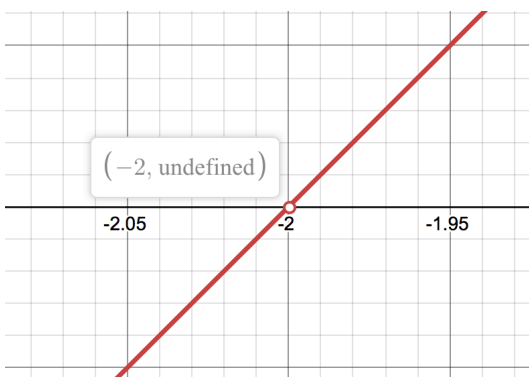
(c)



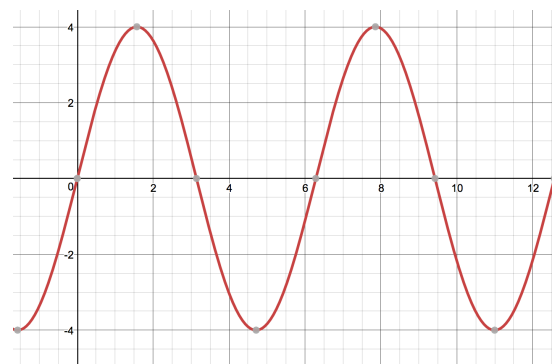
(d)



(e)



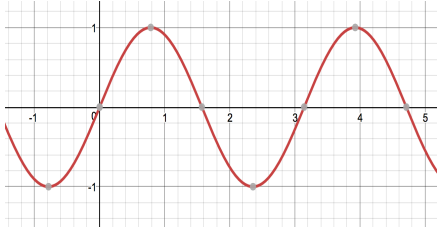
(f)



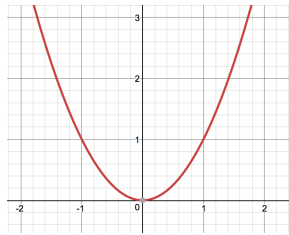


2) Do the following functions have an inverse?

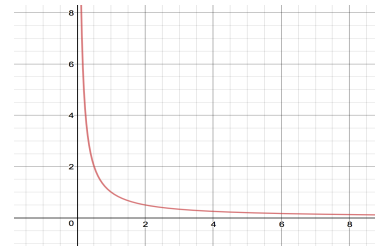
(a)



(b)

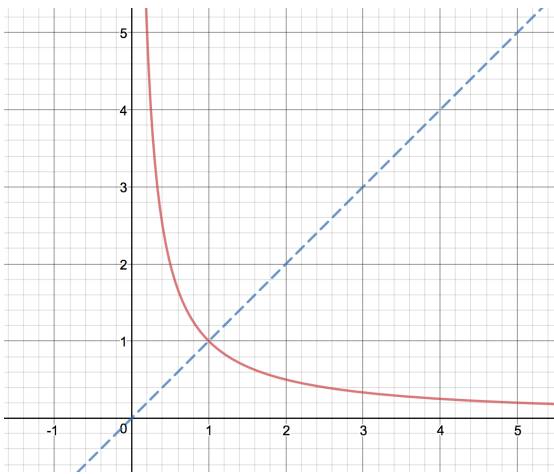


(c)

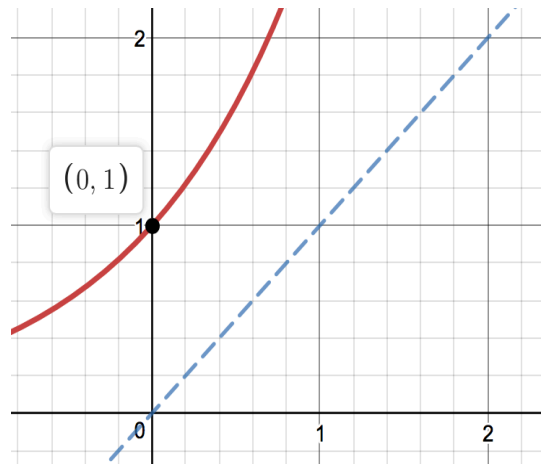


3) Sketch the inverse of the following graphs using the line $y = x$ to help:

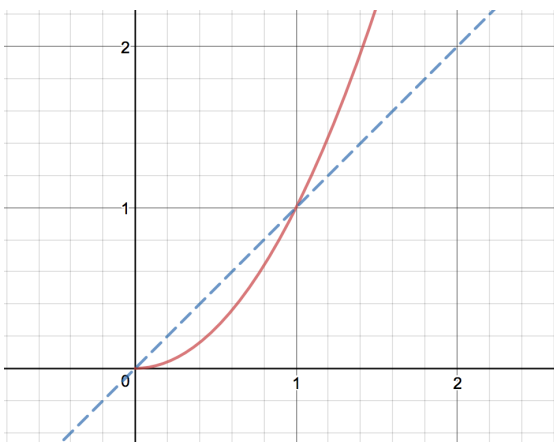
(a)



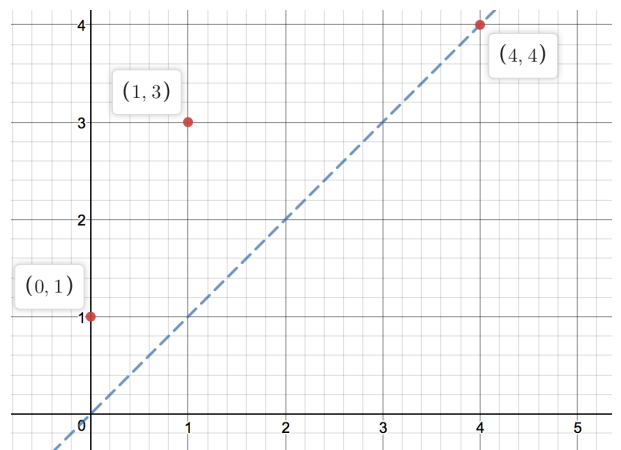
(b)



(c)



(d)





(4) The following functions are defined as:

$$f(x) = 4x + 2, \quad g(x) = x^2 + x \quad h(x) = \frac{x}{x+2}, x \neq -2$$

Find:

- (a) $f(2)$ (b) $fg(x)$ (c) $gf(3)$ (d) $f^{-1}(x)$
- (e) $h^{-1}(x)$ (f) $hh^{-1}(x)$ (g) $f(x+1)$

(5) The following functions are defined as:

$$f(x) = -2x + 7, \quad g(x) = x^2 + 8x + 23$$

(a) If $f(x) = 10$. Find x .

(b) If $f(x) = g(x)$. Find x .

(6) You are given the following information:

$$f(x) = \frac{a}{bx+3} \quad f(3) = \frac{1}{33} \quad f^{-1}(2) = -\frac{1}{4}$$

(a) Find a and b .

(b) What is the domain of $f(x)$?

(7) The following function is defined as:

$$f(x) = \frac{2x+3}{3-2x}, x \neq \frac{3}{2}$$

(a) Find the equation of the horizontal and vertical asymptotes.

(b) Find the coordinates of where $f(x)$ crosses the x -axis and the y -axis.

(c) Draw a sketch of the graph of $f(x)$.