

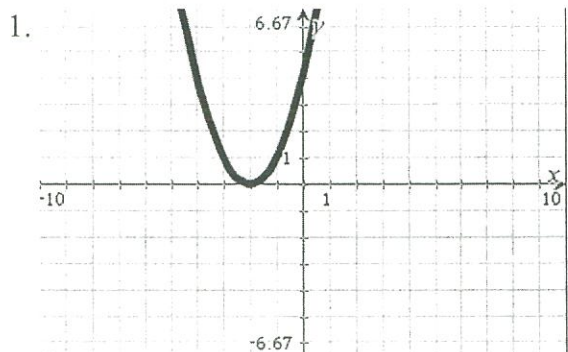
HPC/RPC Inverse Worksheet:

Name KEY

Day 1

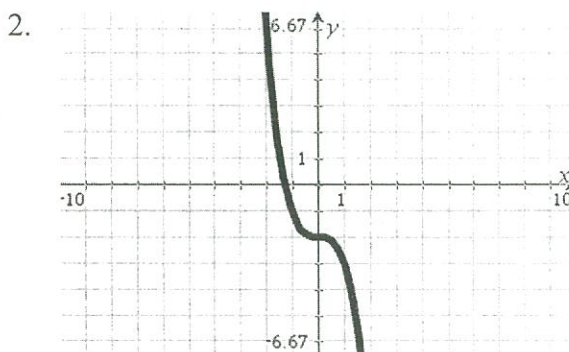
Date _____ Per _____

For exercises 1-6, determine whether the function graphed is invertible. If it is not, restrict the domain that will make it invertible.



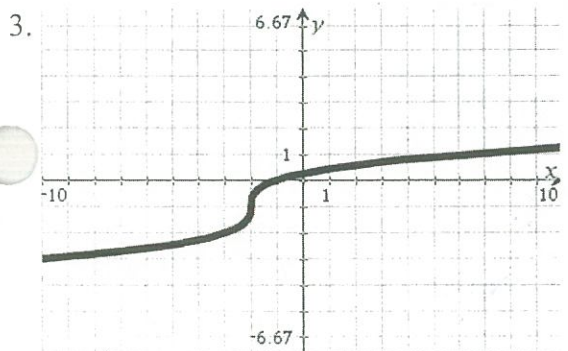
Invertible? NO

Restricted Domain? $[-2, \infty)$



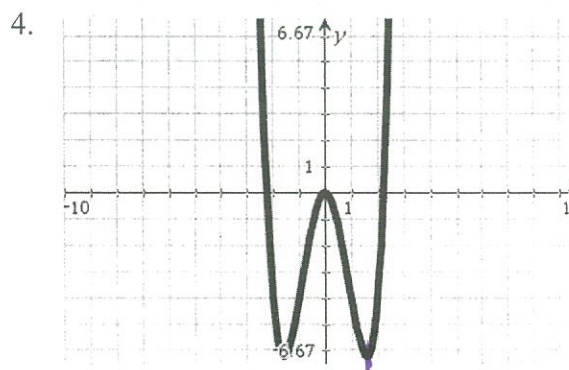
Invertible? yes

Restricted Domain? NA



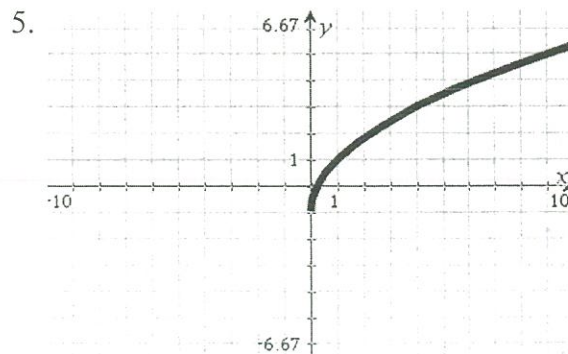
Invertible? yes

Restricted Domain? NA



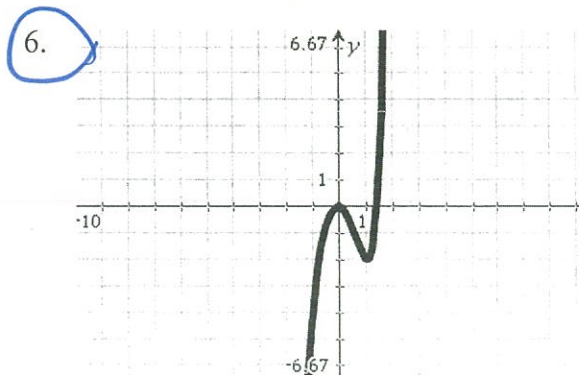
Invertible? NO

Restricted Domain? $[1.5, \infty)$



Invertible? yes

Restricted Domain? NA



Invertible? No

Restricted Domain? $(-\infty, 0]$ OR $[1, \infty)$

For Exercises 7-12, find an equation for $f^{-1}(x)$.

$$7. f(x) = \frac{x}{x+1}$$

$$y = \frac{x}{x+1}$$

$$x = \frac{y}{y+1}$$

$$x(y+1) = y$$

$$xy + x = y$$

$$xy - y = -x$$

$$y(x-1) = -x$$

$$f^{-1}(x) = \frac{-x}{x-1}$$

$$8. f(x) = \frac{x}{x-1}$$

$$y = \frac{x}{x-1}$$

$$x = \frac{y}{y-1}$$

$$xy - x = y$$

$$xy - y = x$$

$$y(x-1) = x$$

$$f^{-1}(x) = \frac{x}{x-1}$$

$$9. f(x) = \frac{2x}{3x-4}$$

$$y = \frac{2x}{3x-4}$$

$$x = \frac{2y}{3y-4}$$

$$x(3y-4) = 2y$$

$$3xy - 4x = 2y$$

$$3xy - 2y = 4x$$

$$y(3x-2) = 4x$$

$$f^{-1}(x) = \frac{4x}{3x-2}$$

$$10. f(x) = \frac{x+1}{x-1}$$

$$x = \frac{y+1}{y-1}$$

$$xy - x = y + 1$$

$$xy - y = x + 1$$

$$y(x-1) = x + 1$$

$$f^{-1}(x) = \frac{x+1}{x-1}$$

$$11. f(x) = \frac{2x+3}{x-3}$$

$$y = \frac{2x+3}{x-3}$$

$$x = \frac{2y+3}{y-3}$$

$$x(y-3) = 2y+3$$

$$xy - 3x = 2y+3$$

$$xy - 2y = 3x+3$$

$$y(x-2) = 3x+3$$

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

$$12. f(x) = \sqrt[3]{x-2}$$

$$y = \sqrt[3]{x-2}$$

$$x = \sqrt[3]{y-2}$$

$$x^3 = y-2$$

$$x^3 + 2 = y$$

$$f^{-1}(x) = x^3 + 2$$