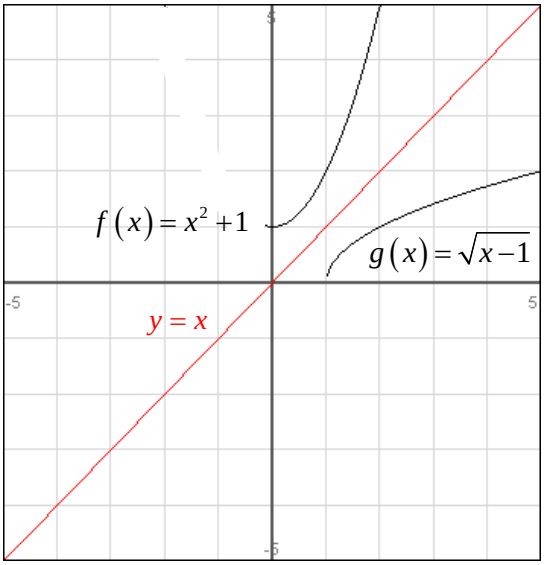
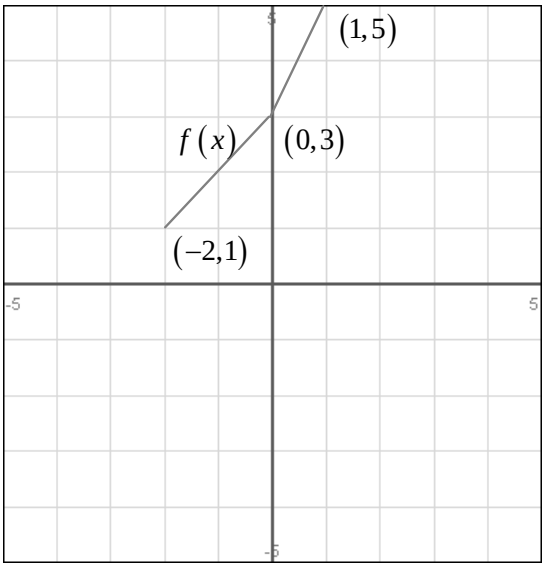
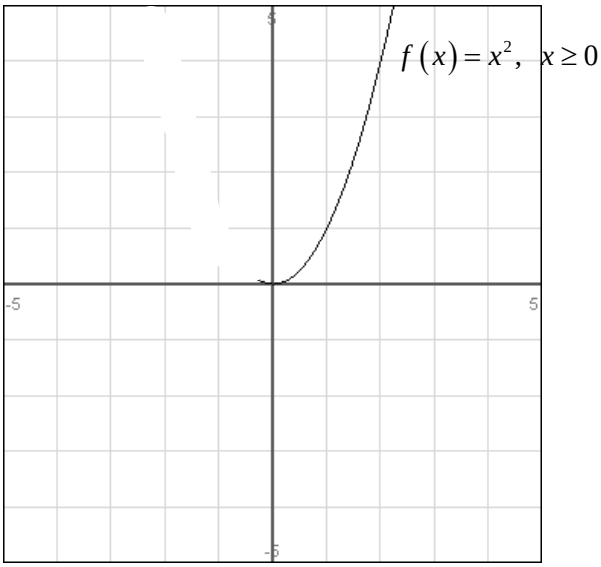
Inverse Functions



$f(x)=x^2+1$	$g(x)=\sqrt{x-1}$
$D: x \geq 0$	$D: y \geq 1$
$R: y \geq 1$	$R: x \geq 0$
y-intercept: $(0,1)$	x-intercept: $(1,0)$





Steps to find the inverse of a function:

1. Substitute y in for $f(x)$.
2. Interchange x and y.
3. Solve for y.
4. Substitute $f^{-1}(x)$ in for y.

1. Find the inverse function of $f(x)$.

a) $f(x) = 2x - 5$

b) $f(x) = \sqrt[3]{1-3x}$

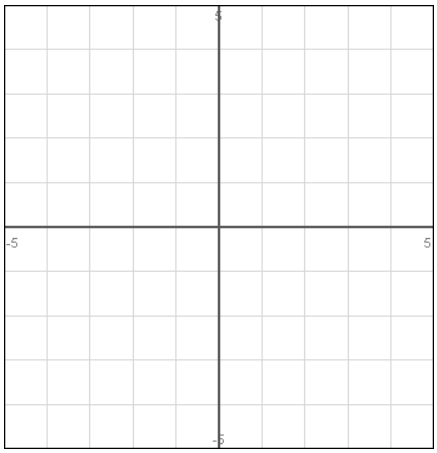
c) $f(x) = x^3 + 2$

d) $f(x) = \dfrac{x+3}{x-2}$

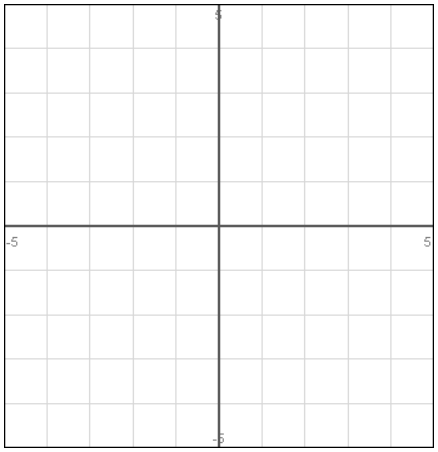
e) $f(x)=\dfrac{2x+1}{x-1}$

2. Show that the functions f and g are inverse functions algebraically and graphically.

a) $f(x)=2-4x,\ \ g(x)=\dfrac{2-x}{4}$



b) $f(x) = x^3 - 1,\ \ g(x) = \sqrt[3]{x+1}$



c) $f(x) = \sqrt{x-2},\ \ g(x) = x^2 + 2\ \ (x \geq 0)$