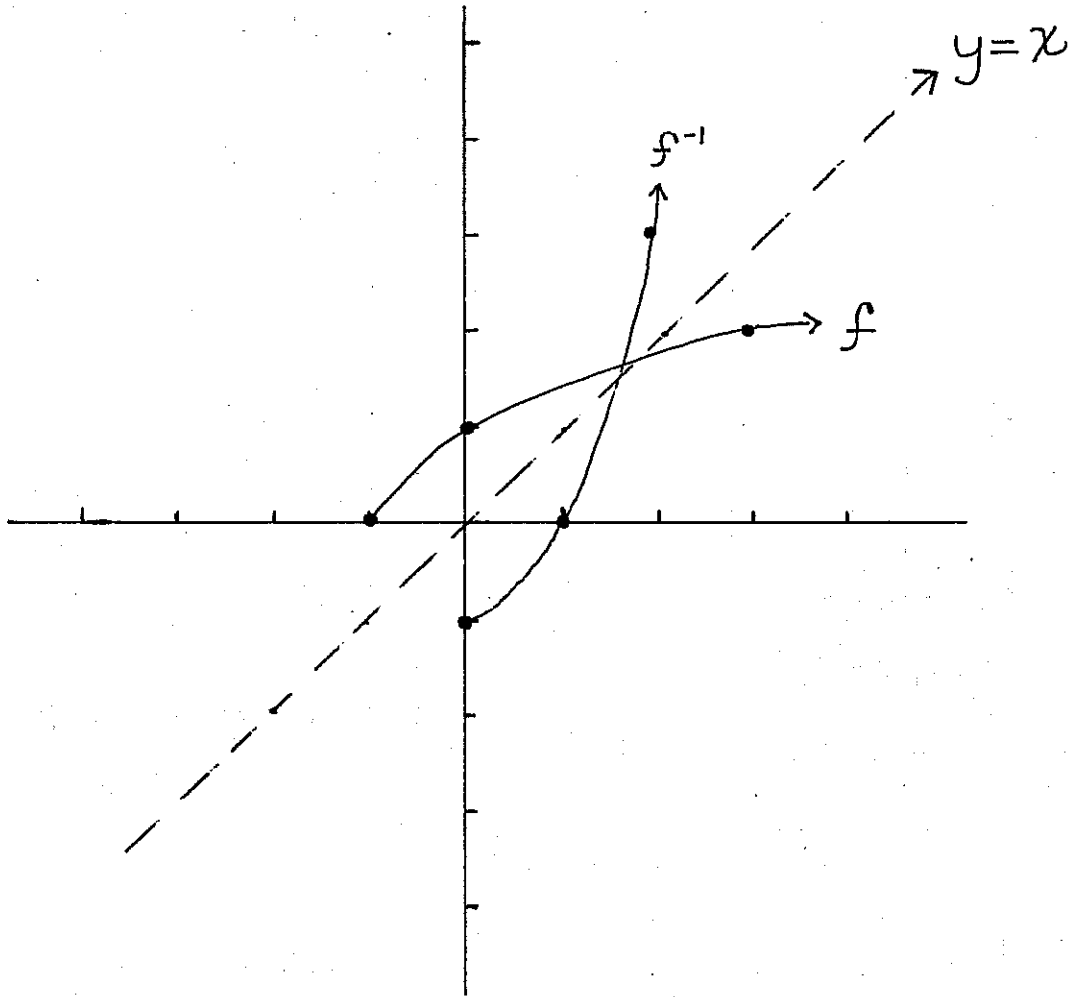


(c)



GRAPH OF $f(x) = \sqrt{x+1}$

x	$f(x)$
-1	0
0	1
3	2

GRAPH OF $f^{-1}(x) = x^2 - 1$
 $x \geq 0$

x	$f^{-1}(x)$
0	-1
1	0
2	3

vertex $x = -\frac{b}{2a} = 0$

$y = -1$

$(0, -1)$

Quiz 1 - Inverse Functions
Functions & Trigonometry(201-009-50)
 Instructor: Emilie Richer
 Date: October 22nd 2009

Scientific calculator is permitted.

SHOW ALL YOUR WORK.

Question 1 (10 marks)

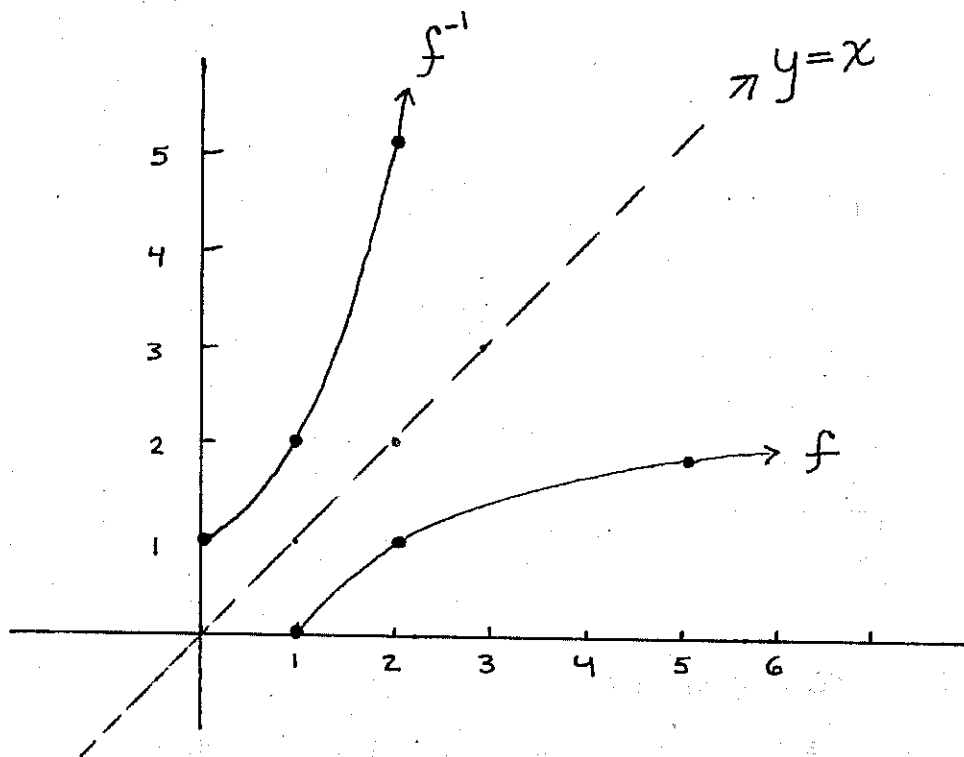
Consider the function $f(x) = \sqrt{x-1}$

- (a) Find $f^{-1}(x)$
 (b) Give the domain and range of both f and f^{-1}
 (c) Graph both f and f^{-1} on the same graph along with the line $y = x$

(a) $x = \sqrt{y-1}$
 $x^2 = y-1$ SQUARE both sides
 $y = x^2 + 1$ $f^{-1}(x) = x^2 + 1$ with $x \geq 0$ *
 * see (b)

	f^{-1}
f	
DOMAIN	DOMAIN
$x \geq 1$ $(1, \infty)$	$x \geq 0$ $(0, \infty)$
RANGE	RANGE
$x \geq 0$ $(0, \infty)$	$x \geq 1$ $(1, \infty)$

(c)



GRAPH OF $f(x) = \sqrt{x-1}$

x	$f(x)$
1	0
2	1
5	2

GRAPH OF

$$f^{-1}(x) = x^2 + 1 \quad x \geq 0$$

vertex $x=0$
 $y=1$ $(0,1)$

x	$f^{-1}(x)$
0	1
1	2
2	5