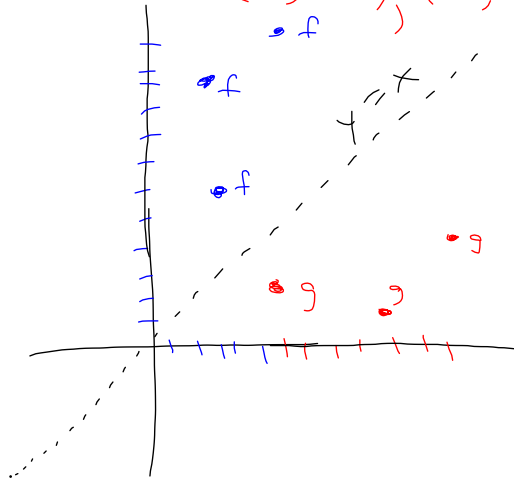


12.1 ex 9  
p. 756  $\{(3,6), (2,10), (5,12)\}$

no ys are repeated  
this is a one-to-one function.

inverse:  $\{(6,3), (10,2), (12,5)\}$



ex 12

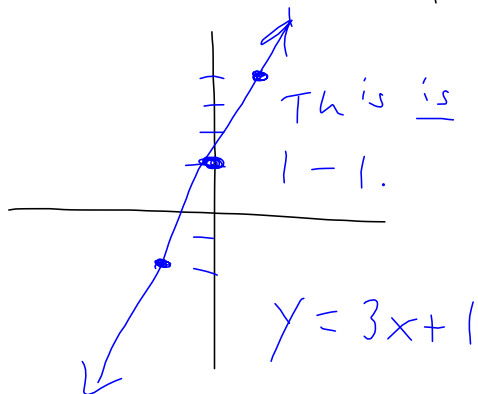
$$\{(-8,6), (-4,3), (\underline{0,6}), (5,10)\}$$

This fails the horiz. line test.

So, this is not one to one

1 - 1

ex 14  $f(x) = 3x + 1$



$$x = 3y + 1$$

$$\frac{x-1}{3} = \frac{3y}{3}$$

$$\frac{x}{3} - \frac{1}{3} = y$$

$$y = \frac{1}{3}x - \frac{1}{3}$$

"f inverse"  $f^{-1}(x) = \frac{1}{3}x - \frac{1}{3}$

ex 16  $g(x) = \sqrt{x+2}$ ,  $x \geq -2$   $y \geq 0$   
 domain range

$$y = \sqrt{x+2}$$

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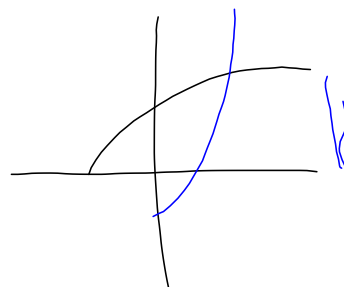

$$x = \sqrt{y+2}$$
,  $y \geq -2$   $x \geq 0$

$$x^2 = y + 2$$

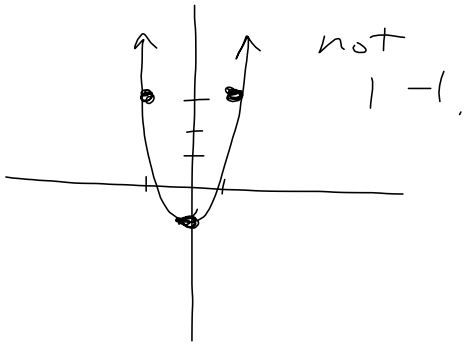
range domain

$$x^2 - 2 = y \rightarrow$$

$$g^{-1}(x) = x^2 - 2$$



ex 18  $f(x) = 4x^2 - 1$

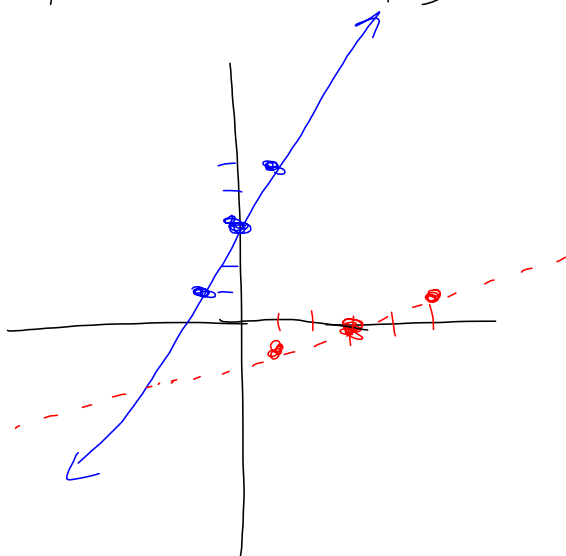


$$x = \frac{-B}{2A} = \frac{-0}{2 \cdot 4} = 0$$

$$y = 4(x - 0)^2 - 1$$

ex 32  $f(x) = 2x + 3$

x	y
-1	1
0	3
1	5

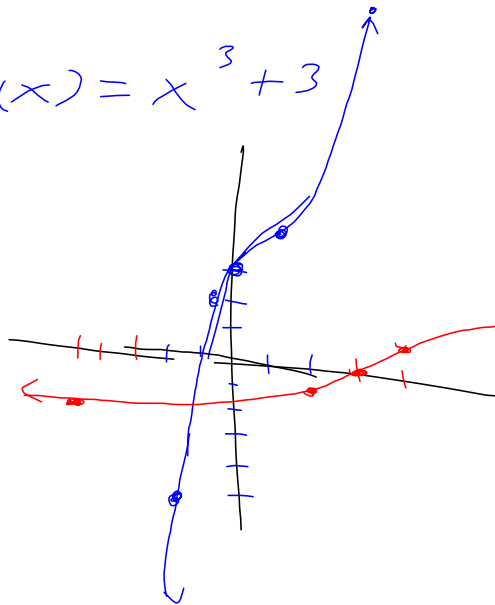


x	y
1	-1
3	0
5	1

ex 38

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

x	f(x)
-2	-5
-1	2
0	3
1	4
2	11



$f^{-1}(x)$

x	$f^{-1}(x)$
-5	-2
2	-1
3	0
4	1
11	2

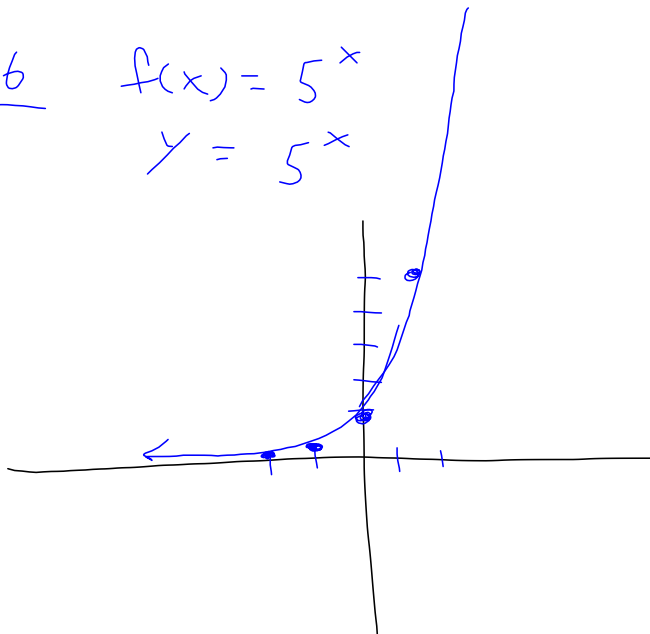
12.2  
p. 764

ex 6

$$f(x) = 5^x$$

$$y = 5^x$$

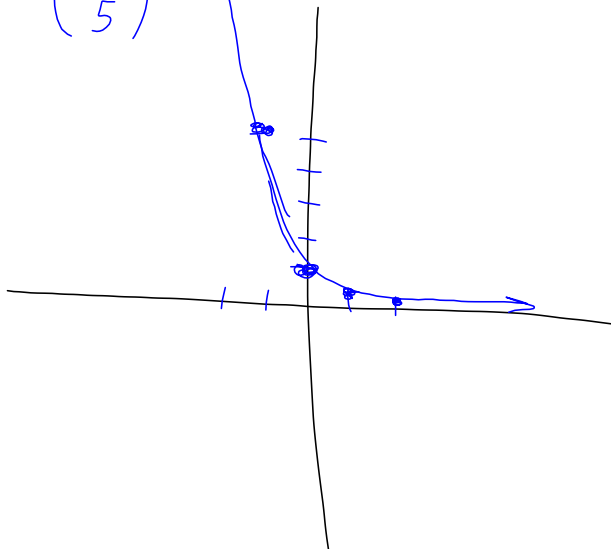
x	y
-2	$\frac{1}{25}$
-1	$\frac{1}{5}$
0	1
1	5
2	25



ex 8

$$y = \left(\frac{1}{5}\right)^x$$

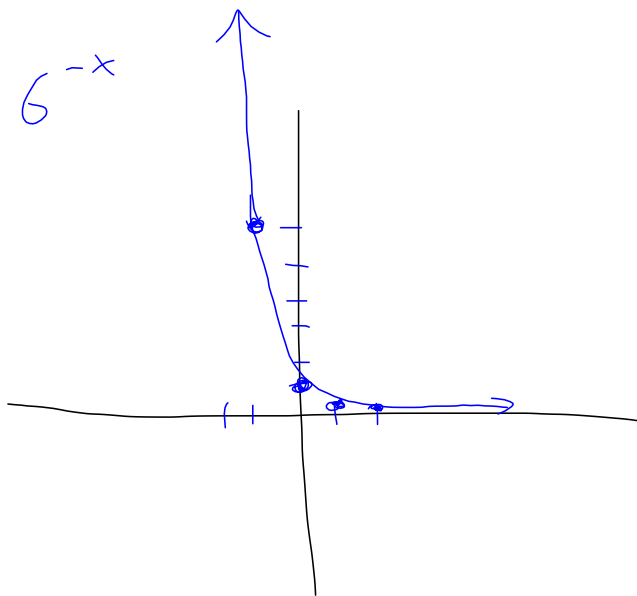
x	y
-2	25
-1	5
0	1
1	$\frac{1}{5}$
2	$\frac{1}{25}$



ex 10

$$y = 6^{-x}$$

x	y
-2	36
-1	6
0	1
1	$\frac{1}{6}$
2	$\frac{1}{36}$



ex 16       $8^x = 64$

$$8^x = 8^2$$

so

$$x = 2$$

$$(2^3)^x = 2^6$$

$$2^{3x} = 2^6$$

so  $\frac{3x}{3} = \frac{6}{3}$

$$x = 2$$

ex 18

$$8^x = 4$$

$$(2^3)^x = 2^2$$

$$2^{3x} = 2^2$$

so,  $3x = 2$

$$x = \frac{2}{3}$$

ex 20

$$9^{2x-8} = 27^{x-4}$$

$$(3^2)^{2x-8} = (3^3)^{x-4}$$

$$3^{4x-16} = 3^{3x-12}$$

$$\text{so, } \begin{array}{r} 4x - 16 = 3x - 12 \\ -3x + 16 \quad -3x + 16 \end{array}$$

$$x = 4$$

$$\begin{array}{cc} 9^0 & 27^0 \\ | & | \end{array}$$

ex 22

$$3^x = \frac{1}{81}$$

$$3^x = 9^{-2}$$

$$3^x = (3^2)^{-2}$$

$$3^x = 3^{-4}$$

$$\text{so, } x = -4$$

$$\underline{Qx26} \quad \left(\frac{4}{3}\right)^x = \frac{27}{64}$$

$$\left(\frac{4}{3}\right)^x = \left(\frac{4}{3}\right)^{-3}$$

hence,  $x = -3$