2.13

(4) $P(x) = -\sqrt{x+3}$

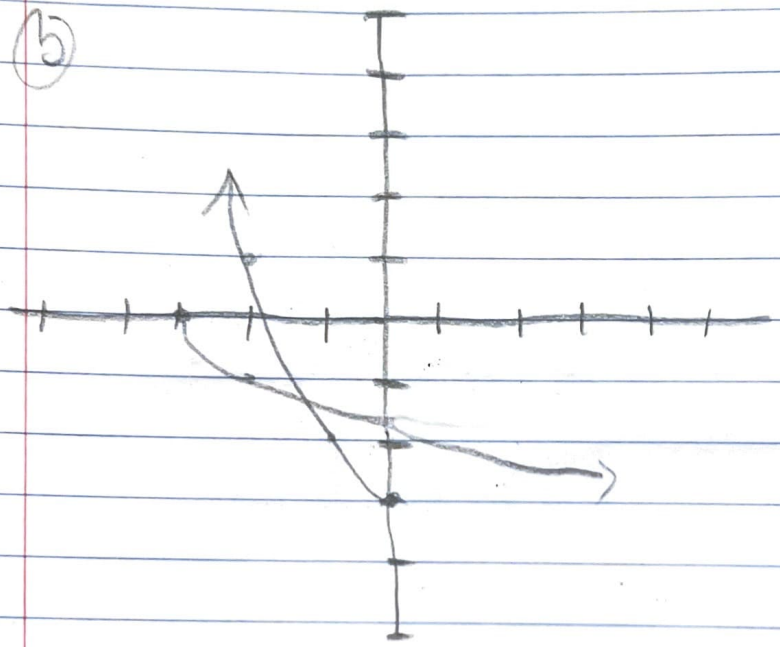
(a) $x = -\sqrt{y+3}$

$-x = \sqrt{y+3}$

$x^2 = y+3$

$\boxed{y = x^2 - 3}$

(b)



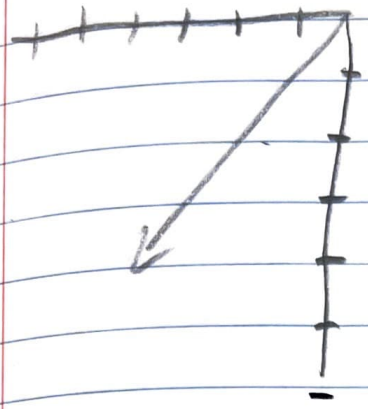
(c) $P\{x \mid x \geq -3\}$

$P^{-1}\{x \mid x \leq 0\}$

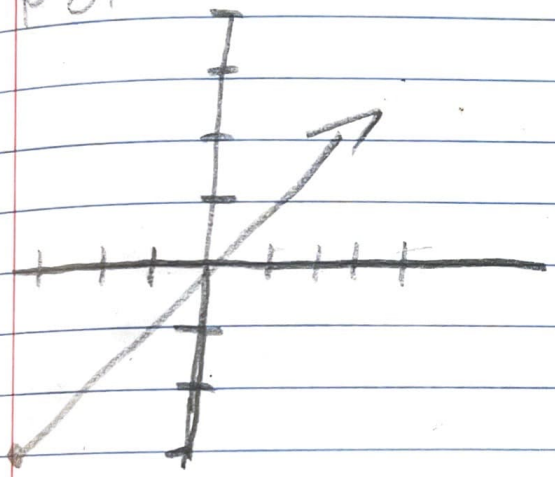
(d) $x \geq -3$

(e) $x \leq 0$

(f) $I \circ P^{-1}$



(g) $P' \circ P$



Handout 13

(1) (a) $C(3.5)$ will give you the cost of a taxi ride that was 3.5 miles

(b) $C(3.5) = \$6.25$

(c) $C^{-1}(3.5)$ This will give you the distance in miles for a taxi ride that was $3.5

(d) $x = y(1.5) + 1 \quad y = \frac{x-1}{1.5} = 1.\overline{66}$ miles

(2) (a) $\{x \mid 0 \le x \le 100\}$

(b) $x = 0.03y^2 + 254.5$

$x - 254.5 = 0.03y^2$

$\frac{x-254.5}{0.03} = y^2$

$y = \sqrt{\frac{x-254.5}{0.03}}$

(c) Given temp, figure out the location

(d) 90.5%

(4) (a) $\{x \mid x \le \frac{3}{2}\}$

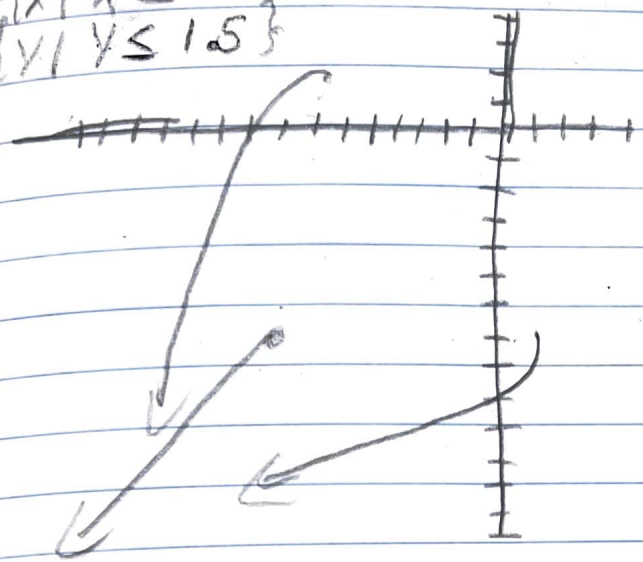
$\{y \mid y \le -7\}$

(b) $g(x) = -\sqrt{3-2x} - 7 \quad x^2 + 14x + 46 = -2y$

$-x - 7 = \sqrt{3-2y} \quad y = \frac{x^2+14x+46}{-2}$

$x^2 + 14x + 49 = 3 - 2y$

(d) $\{x \mid x \leq -7\}$
$\{y \mid y \leq 15\}$



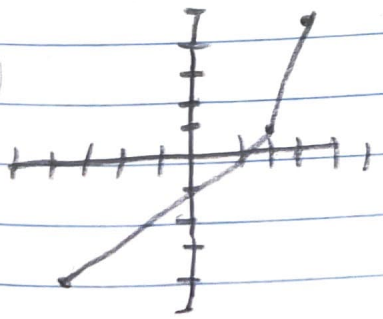
(e) $g(g^{-1}(0)) = 0$ $g^{-1}(g(-9)) = -9$ $g^{-1}(g(2)) = 2$

(f) $g(x) = k \cdot (x^3 + x - 4)$ $g^{-1}(36) = 2$

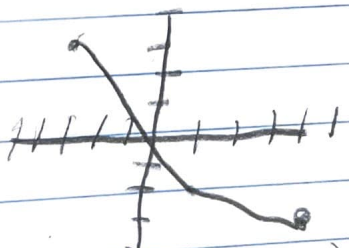
$32 = k \cdot (2^3 + 2 - 4)$
$32 = k(8 + -2)$
$32 = k(6)$
$\boxed{k = \frac{32}{6}}$

7 (a)

(b)



6



(c) a: $\{x \mid -5 \leq x \leq 4\}$
$\{y \mid -3 \leq y \leq 3\}$
b: $\{x \mid -4 \leq x \leq 5\}$
$\{y \mid -3 \leq y \leq 3\}$
c: $\{x \mid -3 \leq x \leq 8\}$
$\{y \mid -4 \leq y \leq 5\}$

(8)

x	$f(x)$	$(f(x))^{-1}$	$f(-x)$	$f^{-1}(x)$
-3	-2	-0.5	-1	1
-2	0	0	3	-3
-1	2	0.5	-3	3
0	1	1	1	-2
1	-3	$-\frac{1}{3}$	2	0
2	3	$\frac{1}{3}$	0	-1
3	-1	-1	-2	2