2.3

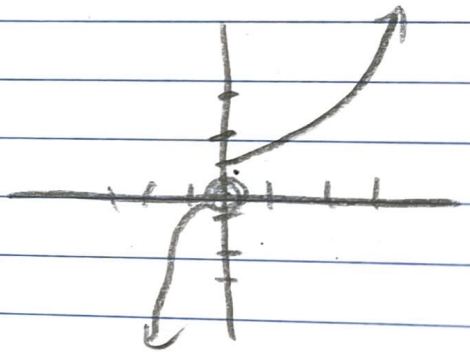
(4) $P(x) = \sqrt{x}$ $q(x) = \frac{1}{x}$ $r(x) = x^3$

(a) $1 + q(x)$ (b) $8\,r(x)$ (c) $\frac{1}{2q(x-1)}$

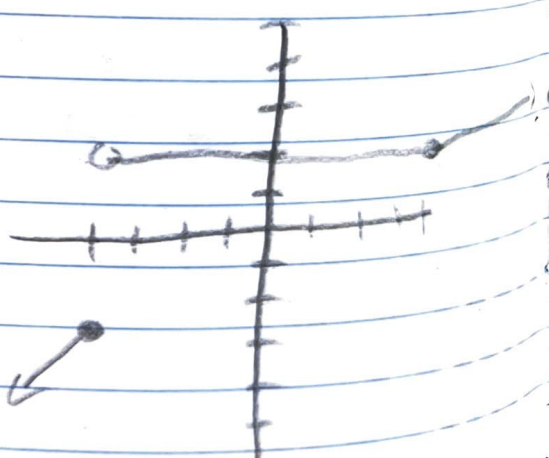
(d) $P(6-x)$ (e) $3 - P(x)$ (f) $r(2x)$

(5) (a) $f(x) = \begin{cases} x & \text{if } x \geq -2 \\ 4 & \text{if } x < -2 \end{cases}$

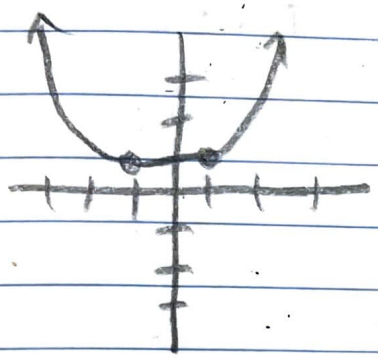
(b) $f(x) = \begin{cases} x^3 & \text{if } x < 0 \\ 2^x & \text{if } x \geq 0 \end{cases}$



(c) $f(x) = \begin{cases} x+2 & \text{if } x \leq 0 \\ 2 & \text{if } 0 < x < 4 \\ \sqrt{x} & \text{if } x \geq 4 \end{cases}$



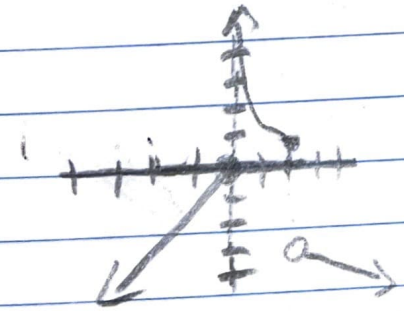
(d) $f(x) = \begin{cases} 1 & \text{if } |x| < 1 \\ x^2 & \text{if } x \geq 1 \end{cases}$



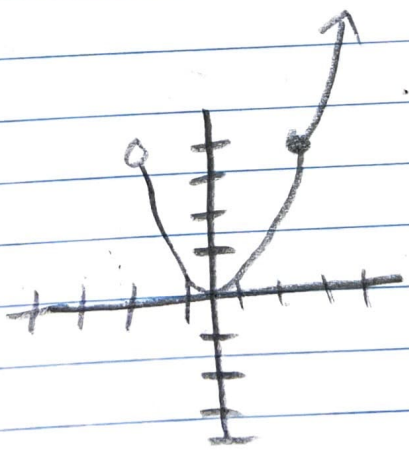
(16) Domain: $\{x \mid -5 \leq x < 4\}$
Range: $\{y \mid -4, -3, -2, -1, 0, 1, 2, 3\}$

Handout 7

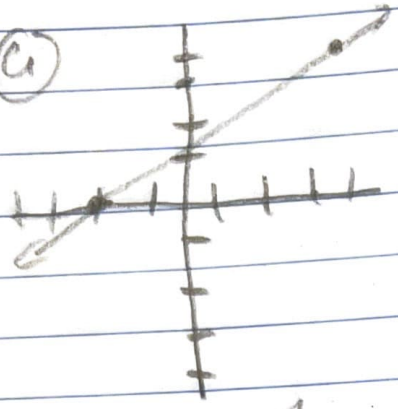
(1) (a) $h(t) = \begin{cases} -0.5t - 2 & t > 2 \\ t & 0 < t \leq 2 \\ t & t \leq 0 \end{cases}$



(b) $g(x) = \begin{cases} x^2 & |x| < 2 \\ 2^x & x \geq 2 \end{cases}$



(2) (a)

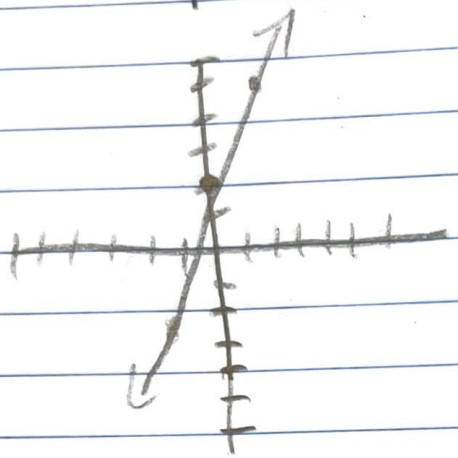


(b) $y-4=\frac{4}{5}(x-3)$

$y-4=\frac{4}{5}x-\frac{12}{5}$

$\boxed{y=\frac{4}{5}x+\frac{8}{5}}$

(4)



(a) $L(x+1)-L(x)=3(x+1)+2-3x+2$

$3x+5-3x+2$

$\boxed{5}$

(b) $L(x+3)-L(x)=3(x+3)+2-(3x+2)$

$3x+11-3x+2$

$\boxed{13}$

(c) $L(x-2)-L(x)=3(x-2)+2-3x+2$

$3x-6+2-3x+2$

-2

$\boxed{-2}$