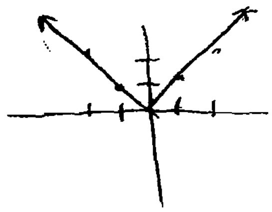
day 4 P24) prob for review for quiz | p24-25 / 30, 34
p A6 / 22 p39-40 / 16, 20, 34

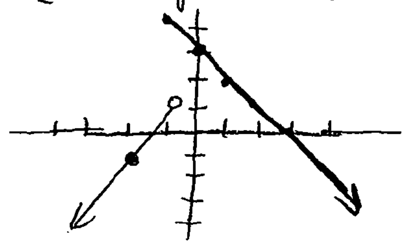
(30) $H(x) = |2x|$

$\begin{cases} 2x, & x \geq 0 \\ -2x, & x < 0 \end{cases}$



$D = (-\infty, \infty)$

(34) $f(x) = \begin{cases} 2x+3 & \text{if } x < -1 \\ 3-x & \text{if } x \geq -1 \end{cases}$



$D = (-\infty, \infty)$

A6

(22) $(x+1)(x-2)(x+3) \geq 0$

N | -3 | Y | -1 | N | 2 | Y

test −4: $(-)(-)(-) \geq 0$ No
test −2: $(-)(0)(+) \geq 0$ yes
test 0: $(+)(-)(+) \geq 0$ No
test 3: $(+)(+)(+) \geq 0$ yes

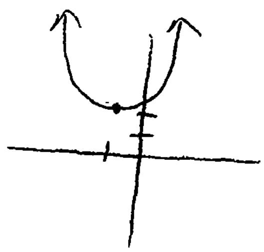
$[-3, -1] \cup [2, \infty)$

p39,40

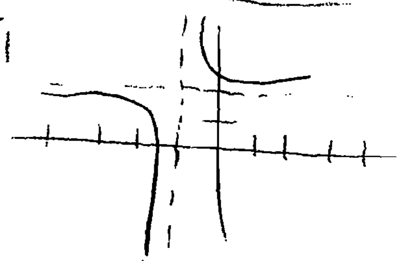
(16) $y = x^2 + 2x + 3$

$x^2 + 2x + 1 \quad +3 - 1$

$y = (x+1)^2 + 2$



(20) $y = 2 + \frac{1}{x+1}$



(34) $f(x) = \sqrt{x-1}$ $g(x) = x^2$

$f \circ g = f(g(x))$ f D: $|x| \geq 1$

$\sqrt{x^2-1}$ g D: all reals

overlap with

$x^2 - 1 \geq 0$

+ | −1 | − | 1 | +

$f \circ g$ D: $(-\infty, -1] \cup [1, \infty)$

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

$x \geq 1$ overlap w/all reals D: $\mathbb{R}$

$g \circ f$

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

$x \geq 1$ overlap w/ Domain of $f(f(x))$

$x - 1 \geq 0$. overlap w/

$x \geq 1$ $\sqrt{x-1} - 1 \geq 0$

$\sqrt{x-1} \geq 1$

$x - 1 \geq 1$

$x \geq 2$

Domain $f \circ f$ $[2, \infty)$

$g \circ g = g(g(x)) = g(x^2) = (x^2)^2 = x^4$

Domain: $\mathbb{R}$

$(-\infty, \infty)$