

Exercise 1.1

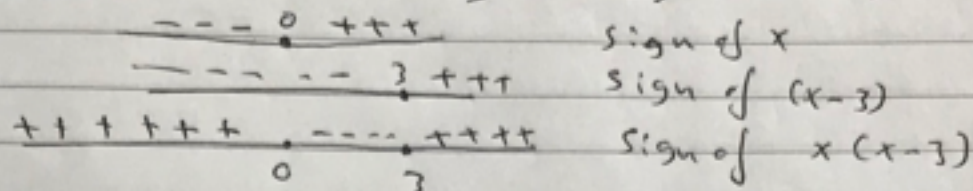
Ex (1) $f(x) = \sqrt{5x+10}$

To find domain F , $5x+10 \geq 0$, so $5x \geq -10$
 $x \geq -2$, so Domain: $F = [-2, \infty)$

Range F is $[0, \infty)$

Ex (4) $g(x) = \sqrt{x^2-3x}$

Domain: $x^2-3x \geq 0 \Rightarrow x(x-3) \geq 0$

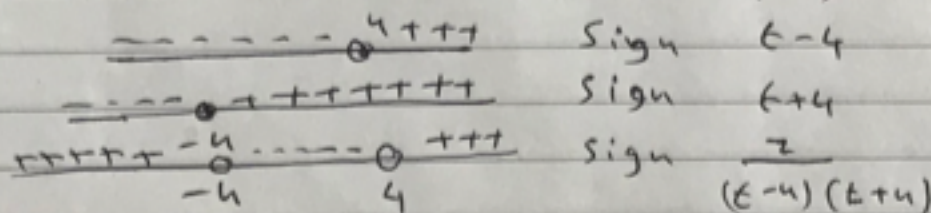


so $x(x-3) \geq 0$ when $x \in (-\infty, 0] \cup [3, \infty)$

so Domain $g(x) = (-\infty, 0] \cup [3, \infty)$

Range $g(x) = [0, \infty)$

Ex (6) $G(t) = \frac{2}{t^2-16} = \frac{2}{(t-4)(t+4)}$



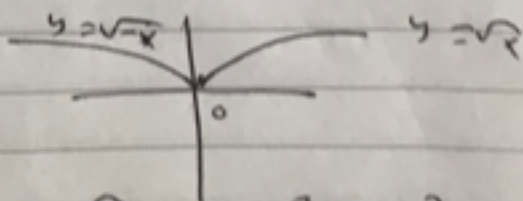
Domain $G(t) = (-\infty, -4) \cup (-4, 4) \cup (4, \infty)$

Range $G(t) = (-\infty, -\frac{1}{8}) \cup (0, \infty)$

Ex (17) $g(x) = \sqrt{|x|} = \begin{cases} \sqrt{x} & x \geq 0 \\ \sqrt{-x} & x < 0 \end{cases}$

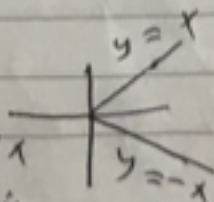
Domain $g(x) = (-\infty, \infty)$

Range $g(x) = [0, \infty)$



(3) a) $|y| = x$

y is not a function of x because any vertical line cuts the graph more than once.



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

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

$|y| = |x|$

Also y is not a function of x

