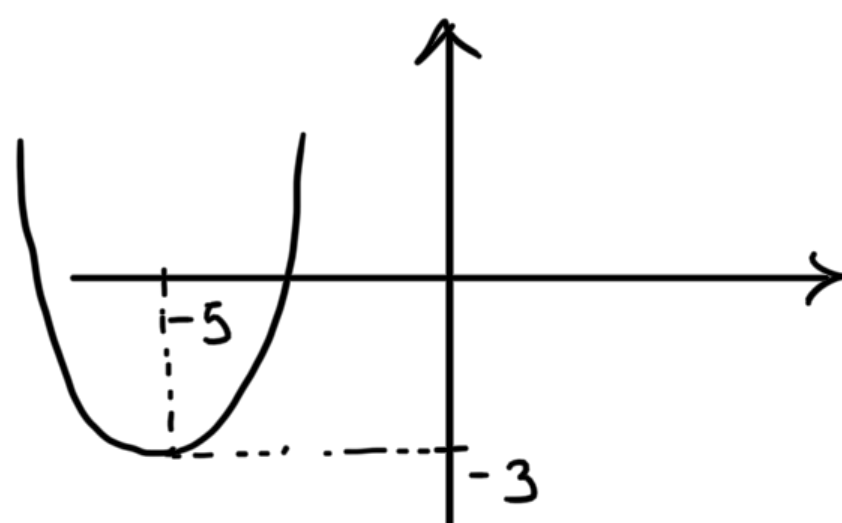
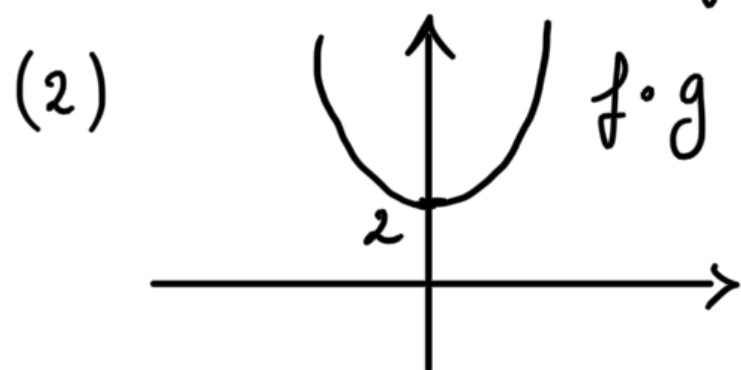


PROBLEM SHEET 4

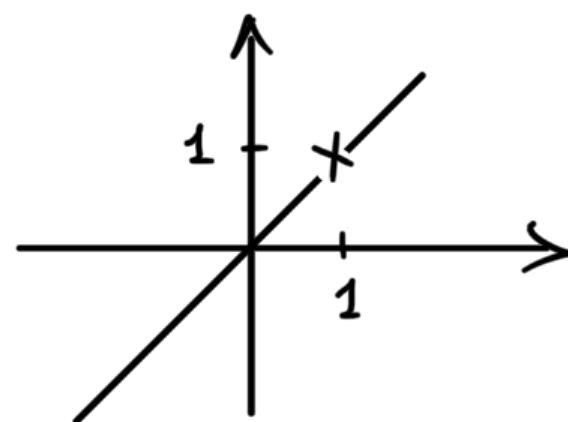
(1) domain of $f+g$, $f-g$, fg is $[-1, 1]$

domain of f/g is $(-1, 1]$

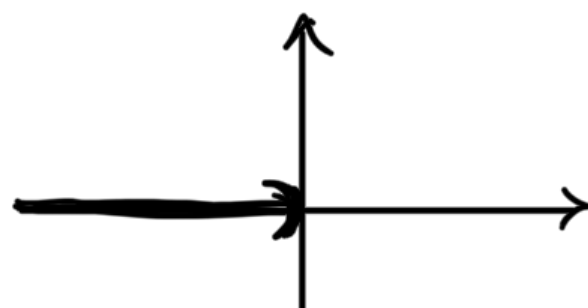
domain of g/f is $[-1, 1)$



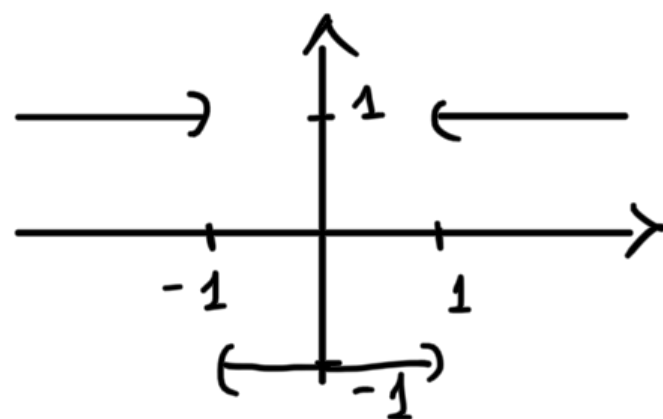
(3) (a) $D = \{x \in \mathbb{R} \mid x \neq 1\}$,
 $R = \{f(x) \in \mathbb{R} \mid f(x) \neq 1\}$



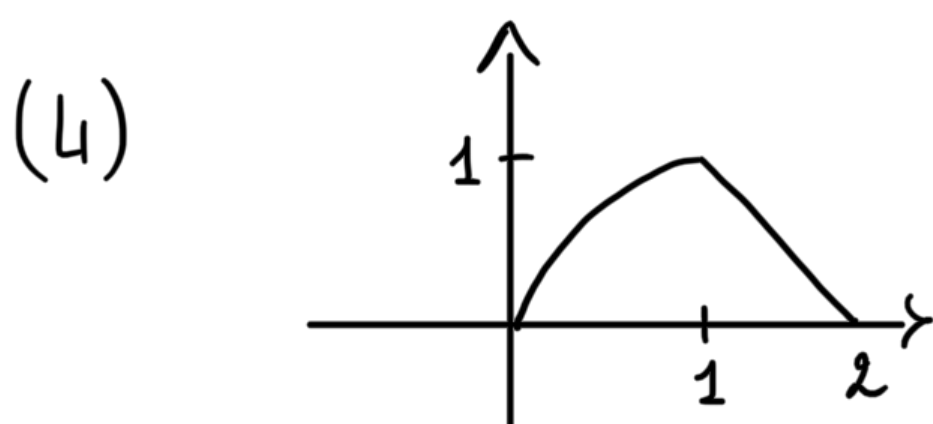
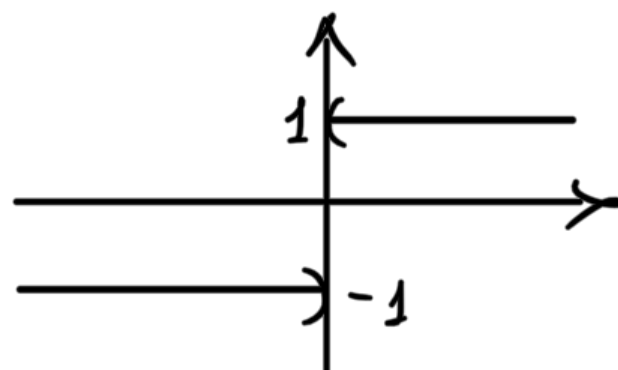
(b) $D = \{x \in \mathbb{R} \mid x < 0\}$
 $R = \{0\}$



(c) $D = \{x \in \mathbb{R} \mid x \neq 1\}$
 $R = \{-1, 1\}$



(d) $D = \{x \in \mathbb{R} \mid x \neq 0\}$
 $R = \{-1, 1\}$



(a) (a) $\Delta = 1$ $R = \emptyset$

(5) (6) $A = 1, B = 0$ or $A = -1, \forall B \in \mathbb{R}$

(b) $A = 1, B = 0$ or $A = -1, \forall B \in \mathbb{R}$

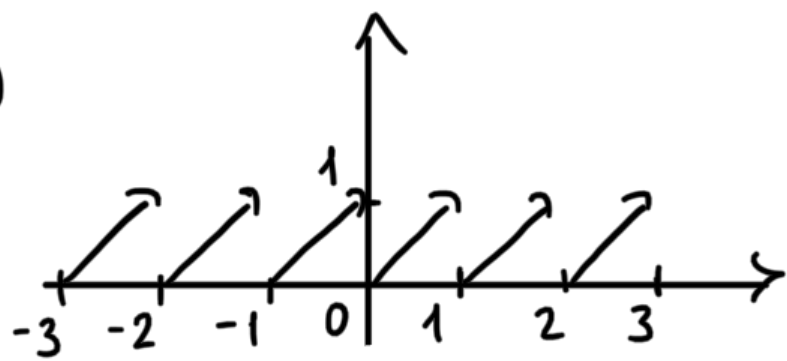
(6) $\lfloor x \rfloor = 0$ iff $x \in [0, 1)$

$\lceil x \rceil = 0$ iff $x \in (-1, 0]$

(7) $\forall x \in \mathbb{Z}$

(8) True

(9)



(10)

