9.4 Exploring Quotients of Functions

| **A Definitions**	Ex 1. Let $f(x) = 1 + x^2$ and $g(x) = \sqrt{x-1}$. Find
The quotient of two functions is defined by $$(f/g)(x) = f(x)/g(x)$$ $$(f \div g)(x) = f(x) \div g(x)$$ $$\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$$	a) $(f/g)(1)$ b) $(f \div g)(2)$ c) $\left(\dfrac{g}{f}\right)(1)$
B Domain of the Quotient of Two Functions The domain of the quotient of two functions is the given by $$D_{f/g} = \{x \in R \mid x \in D_f \cap D_g \text{ and } g(x) \neq 0\}$$ Note. Division by zero is not allowed.	Ex 2. For each case, find the domain of the quotients f/g and g/f. a) $f(x) = 2^x$; $g(x) = \log x$ b) $f(x) = x^2 - 4$; $g(x) = \sqrt{x-1}$

Ex 3. The functions f and g are given by their graphs. Graph the function f/g.

Ex 4. The functions f and g are given graphically on the right figure. Match each graph given below with one of the following combinations:

a) $f + g$
b) $f - g$
c) $g - f$
d) fg
e) f / g
f) g / f
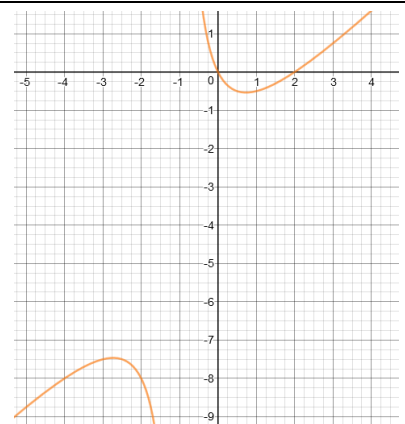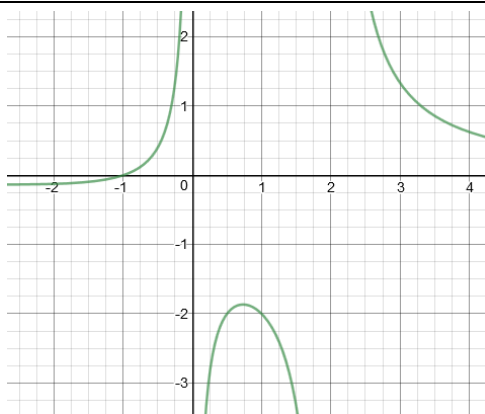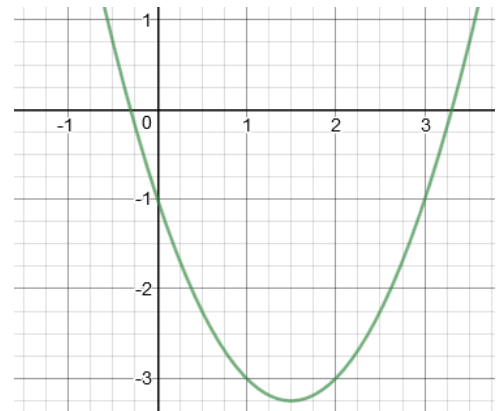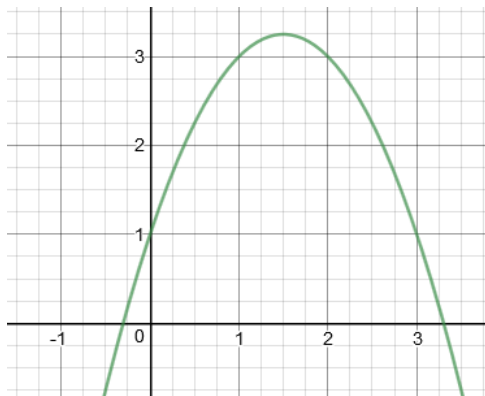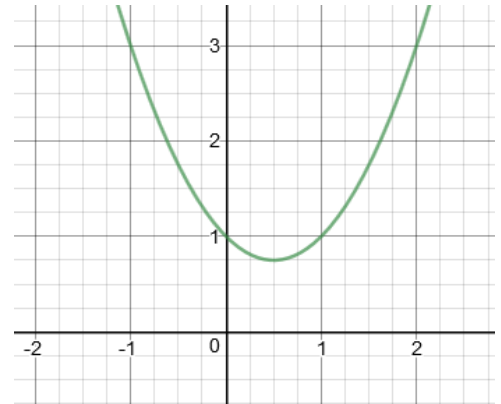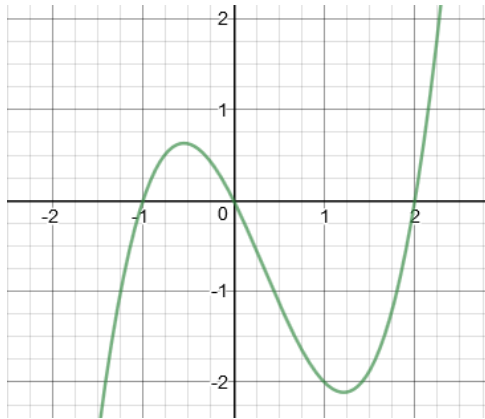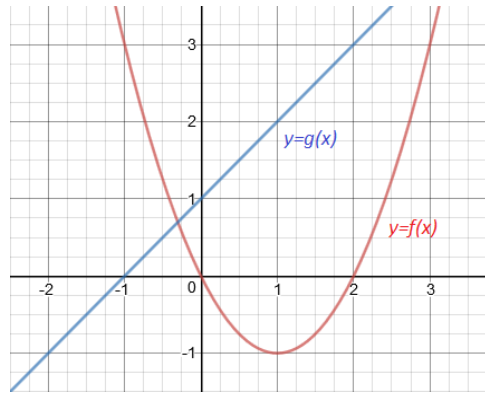
Reading: Nelson Textbook, Pages 540-542
Homework: Nelson Textbook, Page 542 #1,2