Operations with Functions: Addition, Subtraction, Multiplication and Division

The difference of two functions f and g The **sum** of two functions f and g

The **product** of two functions f and g The **quotient** of two functions f and g

The **domain** of this combination functions is the set of real numbers that are **common** to the domain of f and g.

The functions may be combined by algebra or by graphing.

1) a) Using the functions f(x) = 2 - x and $g(x) = -x^2 + 3x - 2$, determine the sum, difference, product and quotient by algebra. State the domain.

b) Determine: (f - g)(-2) =

- c) Determine: (fg)(0) =
- 2) Using the functions $f(x) = \sqrt{x-1}$ and g(x) = x-2, determine the sum, difference, product and quotient by algebra. State the domain.

3) Let
$$f(x) = \frac{2x-1}{x}$$
 and $h(x) = \frac{-2x}{x-1}$. Determine $(f-h)(x)$ and $\left(\frac{f}{h}\right)(x)$.

4) Graph the functions f(x) = x - 2 and g(x) = -x + 4. Determine the sum f + g, the difference f - g and the product fg by graphing.



5) a) Graph the product of the functions f(x) = x + 1 and g(x) = x - 1.

b) Graph the quotient of the functions $f(x) = x^2 + x - 6$ and g(x) = 2x + 6.



