## Operations with Functions: Addition, Subtraction, Multiplication and Division

The sum of two functions $f$ and $g \quad$ The difference of two functions $f$ and $g$

The product of two functions $f$ and $g \quad$ 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 $g(x)=-x^{2}+3 x-2$, determine the sum, difference, product and quotient by algebra. State the domain.
b) Determine: $(f-g)(-2)=$
c) Determine: $(f g)(0)=$
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 $f(x)=\frac{2 x-1}{x}$ and $h(x)=\frac{-2 x}{x-1}$. 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 $f g$ 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 $g(x)=2 x+6$.


