1.- a) $(f+g)(x) = f(x)+g(x) = \frac{2x-1}{3} + \frac{1-x}{2-x} = \frac{-2x^2+2x+5}{6-3x}$

b) $(f-g)(x) = f(x)-g(x) = \frac{2x-1}{3} - \frac{1-x}{2-x} = \frac{-2x^2+8x-5}{6-3x}$

c) $(f\cdot g)(x) = f(x)\cdot g(x) = \frac{2x-1}{3} \cdot \frac{1-x}{2-x} = \frac{-2x^2+3x-1}{6-3x}$

d) $(f/g)(x) = f(x) : g(x) = \frac{2x-1}{3} : \frac{1-x}{2-x} = \frac{-2x^2+4x}{3-3x}$

Dominios: $Dom\ f(x) = \mathcal{R}$; $Dom\ g(x) = \mathcal{R}-\{2\}$; a) $Dom\ (f+g) = \mathcal{R}-\{2\}$

b) $Dom\ (f-g) = \mathcal{R}-\{2\}$; c) $Dom\ (f\cdot g) = \mathcal{R}-\{2\}$; d) $Dom\ (f/g) = \mathcal{R}-\{1, 2\}$

(observa que g(x) no está definida en x = 2, y además se anula para x = 1)

2.- $f(x) = \sqrt{x+1}$ $Dom\ f(x) = [-1, +\infty[$; $g(x) = x+3$ $Dom\ g(x) = \mathcal{R}$

a) $(f+g)(x) = \sqrt{x+1} + x + 3$; $Dom\ (f+g) = [-1, +\infty[$

b) $(f-g)(x) = \sqrt{x+1} - x - 3$; $Dom\ (f-g) = [-1, +\infty[$

c) $(f\cdot g)(x) = (x+3)\sqrt{x+1}$; $Dom\ (f\cdot g) = [-1, +\infty[$

d) $(f/g)(x) = \frac{\sqrt{x+1}}{x+3}$; $Dom\ (f/g) = [-1, +\infty[- \{3\} =]-1, 3[\cup]3, +\infty[$

3.- $f(x) = \frac{1}{x-2}$ $Dom\ f(x) = \mathcal{R}-\{2\}$; $g(x) = \sqrt[3]{x+1}$ $Dom\ g(x) = \mathcal{R}$

a) $(f+g)(x) = \frac{1+(x-2)\sqrt[3]{x+1}}{x-2}$; $Dom\ (f+g) = \mathcal{R}-\{2\}$

b) $(f-g)(x) = \frac{1-(x-2)\sqrt[3]{x+1}}{x-2}$; $Dom\ (f-g) = \mathcal{R}-\{2\}$

c) $(f\cdot g)(x) = \frac{\sqrt[3]{x+1}}{x-2}$; $Dom\ (f\cdot g) = \mathcal{R}-\{2\}$

d) $(f/g)(x) = \frac{1}{(x-2)\sqrt[3]{x+1}}$; $Dom\ (f/g) = \mathcal{R}-\{-1, 2\}$

4.- a) $(f\circ g)(x) = f(g(x)) = f(x^2-1) = x^2-1+2 = x^2+1$

b) $(g\circ f)(x) = g(f(x)) = g(x+2) = (x+2)^2-1 = x^2+4x+3$

5.- a) $f\circ g = \frac{1-3x^2}{x^2}$ b) $g\circ f = \frac{1}{x^2-3}$

6.- Dadas las siguientes funciones, $f(x) = x+2$; $g(x) = \sqrt{x}$; $h(x) = x^2-2$, calcula:

a) $(g\circ f\circ h)(x) = g(f(h(x))) = g(f(x^2-2)) = g(x^2-2+2) = g(x^2) = \sqrt{x^2} = x$

b) $f\circ g\circ h = \sqrt{x^2-2}+2$; c) $h\circ f = x^2+4x+2$; d) $g\circ h = \sqrt{x^2-2}$