IB$_1$ **Maths SL Pre-Test 7**

Wednesday 28 May 2025

Subject: *Domain & composite functions*

Question 1

Find the *domain* of the following functions

1) $f_1(x) = \frac{3x^5 - 17x^3 + x(x+1) - 2}{12}$

2) $f_2(x) = \frac{(x-1)(x-2)(x-3)}{(x-4)(x-5)(x-6)}$

3) $f_3(x) = \frac{\sqrt{x}}{(x-2)(x-3)}$

4) $f_4(x) = \frac{\sqrt{x-4}}{x^2-5x+6}$

5) $f_5(x) = 5\sqrt{13-x} + 18\log_5(x-7) + \frac{3}{x}$

Question 2

Given $f(x) = \frac{4x}{x+1}$ and $g(x) = \frac{x-1}{4}$

1) Find the *composite function* $(f \circ g)(x)$

2) Find the *product function* $(f.g)(x)$

3) Bonus : Solve $(f \circ g)(x) = (f.g)(x)$