Algebra 6

Solve the equation

$\frac{x^2-1}{4} - 3 = \frac{x-2}{x-4}$ $x \neq 4$

$\frac{x^2-1-12}{4} = \frac{x-2}{x-4}$

$(x^2 - 13)(x - 4) = 4(x-2)$

$x^3 - 4x^2 - 13x + 52 = 4x - 8$

$f(x) = x^3 - 4x^2 - 17x + 60$

$f(3) = 0 \Rightarrow (x-3)$ is a factor

$(x-3)(x^2 + ax - 20) = 0$

$ax^2 - 3x^2 = -4x^2$

$(a - 3) = -4 \Rightarrow a = -1$

$f(x) = (x-3)(x^2 - x - 20)$

$= (x-3) \cdot (x-5)(x+4) = 0$

$x = 3$

$x = 5$

$x = -4$