2241

a) $\dfrac{4x^2 - 4x - 1}{5x - 10x^2} = \dfrac{(2x)^2 - 2 \cdot 2x \cdot 1 - 1^2}{5x(1 - 2x)}$

$= \dfrac{(2x - 1)^2}{5x(1 - 2x)} = \dfrac{(2x - 1)^2}{-5x(2x - 1)} = \dfrac{2x - 1}{-5x}$

$= -\dfrac{2x - 1}{5x} = \dfrac{1 - 2x}{5x}$

b) $\dfrac{(12 - 2x)^2}{x^2 - 12x + 36} = \dfrac{(12 - 2x)(12 - 2x)}{x^2 - 2 \cdot 6 \cdot x + 6^2} = \dfrac{2(6 - x)2(6 - x)}{(x - 6)^2}$

$= \dfrac{4(6 - x)^2}{(x - 6)(x - 6)} = \dfrac{4(6 - x)^2}{(-1)(6 - x) \cdot (-1)(x - 6)} = \dfrac{4(6 - x)^2}{(6 - x)^2} = 4$

c) $\dfrac{2x^3 - 8x}{4x^2 - 2x^3} = \dfrac{2x(x^2 - 4)}{2x^2(2 - x)} = \dfrac{2x(x^2 - 2^2)}{-2x^2(x - 2)}$

$= \dfrac{2x(x + 2)(x - 2)}{-2x^2(x - 2)} = -\dfrac{x + 2}{x}$

d) $\dfrac{1 - x^2}{(x - 1)^2} = \dfrac{(1 - x)(1 + x)}{(x - 1)^2} = -\dfrac{(x - 1)(x + 1)}{(x - 1)^2}$

$= -\dfrac{x + 1}{x - 1} = \dfrac{x + 1}{-(x - 1)} = \dfrac{x + 1}{1 - x}$