Answer

1)

a)

$= (7x^4 + 3x^3 + x^2 + 10) - (9x^4 + 6x^3 + 7x^2 + 8x + 2)$

$= \boxed{11x^4 + 10x^3 + 7x^2 + 5x + 8}$

b) $(7x^3 + 2x + 9) \times (2x^3 + x^2 + 8x + 7) =$

$\boxed{x^6 + 11x^5 + 44x^4 + 64x^3 + 127x^2 + 86x + 63}$

c) $\dfrac{12x^5 + 44x^4 + 86x^3 + 12x^2 + x}{3x^3 + 4x^2 + 3}$

$= \boxed{4x^2 + 9x + 17 + \dfrac{x^3 - 66x^2 + 13x - 12}{3x^3 + 4x^2 + 3}}$

2)

a) $(x^2+x+1) \times (x+1)$

$x^3 + x + 1 = \boxed{x}$

b) $(x+1) - (x^2+x-1) = -x^2 = \boxed{x^2}$

c) $\dfrac{x^2+x+1}{x^2+1} = \boxed{\left(1 + \dfrac{x}{x^2+1}\right) \% (x^3+x+1)}$