

Exercice 4.2.

a) b) c) d) e) f) g) déjà fait dans autre fichier

h) $f'(x) = [(4x - 11)(x^2 + x + 7)]' = (4x - 11)'(x^2 + x + 7) + (4x - 11)(x^2 + x + 7)' =$

$u(x) = 4x - 11$	$v(x) = x^2 + x + 7$
$u'(x) = 4$	$v'(x) = 2x + 1$

$$= 4(x^2 + x + 7) + (4x - 11)(2x + 1) =$$

$$= 4x^2 + 4x + 28 + 8x^2 + 4x - 22x - 11 = \boxed{12x^2 - 14x + 17}$$

i) $f'(x) = [(5x + 3)(x^3 + 5)]' = (5x + 3)'(x^3 + 5) + (5x + 3)(x^3 + 5)' =$

$u(x) = 5x + 3$	$v(x) = x^3 + 5$
$u'(x) = 5$	$v'(x) = 3x^2$

$$= 5(x^3 + 5) + 3x^2(5x + 3) =$$

$$= 5x^3 + 25 + 15x^3 + 9x^2 = \boxed{20x^3 + 9x^2 + 25}$$

j) $f'(x) = [(x^2 + 7x)(3x^2 - x - 3)]' = (x^2 + 7x)'(3x^2 - x - 3) + (x^2 + 7x)(3x^2 - x - 3)' =$

$u(x) = x^2 + 7x$	$v(x) = 3x^2 - x - 3$
$u'(x) = 2x + 7$	$v'(x) = 6x - 1$

$$= (2x + 7)(3x^2 - x - 3) + (x^2 + 7x)(6x - 1) =$$

$$= 6x^3 - 2x^2 - 6x + 21x^2 - 7x - 21 + 6x^3 - x^2 + 42x^2 - 7x = \boxed{12x^3 + 60x^2 - 20x - 21}$$

k) $f'(x) = [(x + \sqrt{5})(x^2 + 2)]' = (x + \sqrt{5})'(x^2 + 2) + (x + \sqrt{5})(x^2 + 2)' =$

$u(x) = x + \sqrt{5}$	$v(x) = x^2 + 2$
$u'(x) = 1$	$v'(x) = 2x$

$$= 1 \cdot (x^2 + 2) + 2x(x + \sqrt{5}) =$$

$$= x^2 + 2 + 2x^2 + 2\sqrt{5}x = \boxed{3x^2 + 2\sqrt{5}x + 2}$$

l) $f'(x) = [(3x^2 + 4)(2x - 7)]' = (3x^2 + 4)'(2x - 7) + (3x^2 + 4)(2x - 7)' =$

$u(x) = 3x^2 + 4$	$v(x) = 2x - 7$
$u'(x) = 6x$	$v'(x) = 2$

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

$$= 12x^2 - 42x + 6x^2 + 8 = \boxed{18x^2 - 42x + 8}$$