Expanding Harder Brackets

Expand and simplify:

(a) $x(x^2 + 4x + 2)$

(b) $(x + 2)(x^2 + x + 1)$

(c) $(x - 1)(x^2 - x - 1)$

(d) $(3x - 2)(x^2 - x - 1)$

(e) $(2x - 1)(2x^2 - 3x + 5)$

(f) $(2x + 3)(x^2 - 6x - 3)$

(a) x^3+4x^2+2x
(b) x^3+3x^2+3x+2
(c) x^3-2x^2+1
(d) $3x^3-5x^2-x+2$
(e) $4x^3-8x^2+13x-5$
(f) $2x^3-9x^2-24x-9$

Expand and simplify:

(a) $x(x + 1)(x + 2)$

(b) $(x + 1)(x + 2)(x + 3)$

(c) $(x + 4)(x - 1)(x + 1)$

(d) $(x - 2)(x - 3)(x + 1)$

(e) $(x + 1)(2x + 1)(x + 2)$

(f) $(2x + 1)(x - 3)(3x - 1)$

(a) x^3+3x^2+2x
(b) $x^3+6x^2+11x+6$
(c) x^3+4x^2-x-4
(d) x^3-4x^2+x+6
(e) $2x^3+7x^2+7x+2$
(f) $6x^3-17x^2-4x+3$

Expand and simplify:

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

(b) $(x + 2)(2x - 1)^2$

(c) $(2x + 3)(x - 2)^2$

(a) x^3+4x^2+5x+2
(b) $4x^3+4x^2-7x+2$
(c) $2x^3-5x^2-4x+12$

Expand and simplify:

(a) $(x + 1)^3$

(b) $(2x - 1)^3$

(c) $(3x + 2)^3$

(a) x^3+3x^2+3x+1
(b) $8x^3-12x^2+6x-1$
(c) $27x^3+54x^2+36x+8$