2.14 Sievennä.

CAS **a)** $6t^2 - 3t^2(2t-4)$

b) $4t^3 - t^2 + 2t(t^2 - 2t + 3)$

a) $6t^2 + (-3t^2)\cdot 2t + (-3t^2)\cdot(-4) = 6t^2 - 6t^3 + 12t^2 = \underline{-6t^3 + 18t^2}$

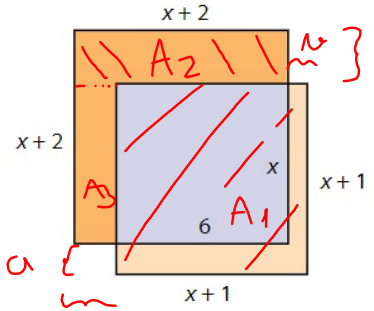
TAI $6t^2 - (3t^2 \cdot 2t + 3t^2 \cdot (-4)) = 6t^2 - (6t^3 - 12t^2)$

$= 6t^2 - 6t^3 + 12t^2 = \underline{-6t^3 + 18t^2}$

b) $4t^3 - t^2 + 2t^3 - 4t^2 + 6t = \underline{6t^3 - 5t^2 + 6t}$

2.22 Koko kuvion pinta-ala on 77.

Ratkaise muuttuja x.



$d = x + 2 - x = 2$

$c = x + 2 - 6 = x - 4$

$A_1 + A_2 + A_3 = 77$

$(x+1)(x+1) + 2(x+2) + x(x-4) = 77$

$x^2 + x + x + 1 + 2x + 4 + x^2 - 4x = 77$

$2x^2 + 5 = 77$

$2x^2 = 72 \;|:2$

$x^2 = 36 \;|\sqrt{}$

$x = \pm 6$

Summan neliö

$(2x)^2 + 2 \cdot 2x \cdot (-3) + (-3)^2$

Johdanto: $(\overbrace{2x}^{a} - \overbrace{3}^{b})^2 = (2x-3)(2x-3) = 4x^2 - 6x - 6x + 9 = 4x^2 - 12x + 9$

YLEISESTI: $(a+b)^2 = (a+b)(a+b) = a^2 + ab + ab + b^2 = a^2 + 2ab + b^2$

MUISTISÄÄNTÖ: $\boxed{(a+b)^2 = a^2 + 2ab + b^2}$

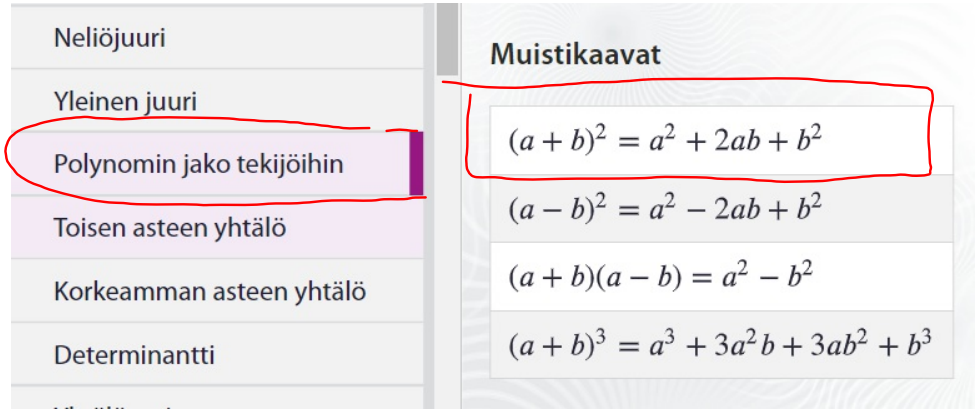
Esim. a) $(x+1)^2 = x^2 + 2x \cdot 1 + 1^2$

$= x^2 + 2x + 1$

b) $(\underbrace{3x}_{a} - \underbrace{4}_{b})^2 = (3x)^2 + 2 \cdot (3x) \cdot (-4) + (-4)^2$

$= 9x^2 - 24x + 16$

MAOL



3.8 Määritä vakiolle a sellainen arvo, että polynomi on binomin neliö.

a) x^2+8x+a

b) $x^2+ax+25$

c) $4x^2-8x+a$

b) $x^2 + ax + \overbrace{25}^{5^2}$

$a^2 + 2ab + b^2$

$\left.\begin{matrix} a = x \\ b = 5 \end{matrix}\right\} \Rightarrow a = 2 \cdot 5 = 10$