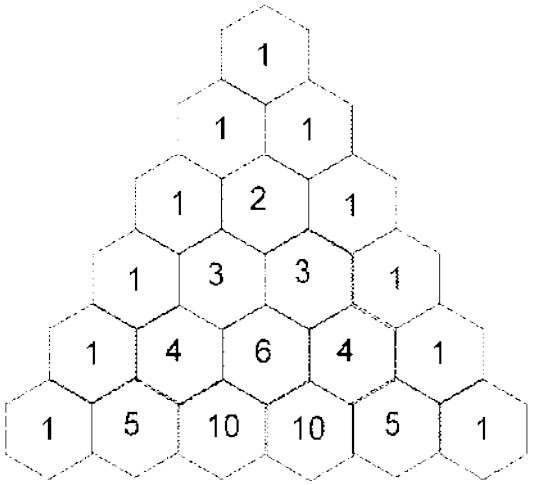
a) Expand $(x - 3)^4$ and simplify your result

b) Hence find the x^3 term in $(x + 2)(x - 3)^4$.

You can use Pascal's Triangle



$$(x-3)^4 = 1(x)^4 + 4(x)^3(-3)^1 + 6(x)^2(-3)^2 + 4(x)^1(-3)^3 + 1(-3)^4$$
$$= 1x^4 + 4x^3(-3) + 6x^2(9) + 4x(-27) + 1(81)$$
$$= x^4 - 12x^3 + 54x^2 - 108x + 81$$

$$(x-2)(x-3)^4 = (x-2)(x^4 - 12x^3 + 54x^2 - 108x + 81)$$

x^3 *term* $(x-2)(x^4 - 12x^3 + 54x^2 - 108x + 81)$

$$= -2(-12x^3) + x(54x^2)$$
$$= 24x^3 + 54x^3$$
$$= 78x^3$$