1. Factor: $6y - 6x^2y^7$ (Hint: factor out the GCF first)

$= 6y(1 - x^2y^6)$

$A = 1$, $B = xy^3$

$= 6y(1 + xy^3)(1 - xy^3)$

2. Factor completely: $81x^4 - 16$ (Note: you'll need to factor more than once, so keep going!)

$A = 9x^2$, $B = 4$

$= (9x^2 + 4)(9x^2 - 4)$

$A = 3x$, $B = 2$

$= (9x^2 + 4)(3x + 2)(3x - 2)$

3. Factor completely: $x^3 + 7x^2 - 4x - 28$

(Hint: first factor by grouping, then factor again via the $A^2 - B^2 = (A + B)(A - B)$ formula)

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

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

$= (x + 7)(x + 2)(x - 2)$

4. Factor: $a^2 - b^2 + 4b - 4$

(Hint: first factor out a "-1" from the last three terms)

$= a^2 - (b^2 - 4b + 4)$

$= a^2 - (b-2)^2$

$= (a + (b-2))(a - (b-2))$

$= \boxed{(a+b-2)(a-b+2)}$

5. Factor: $x^3 - 8$

$A = x \quad B = 2$

$= \boxed{(x-2)(x^2+2x+4)}$

6. Factor: $1 + 27x^3y^3$

$A = 1 \quad B = 3xy$

$= \boxed{(1+3xy)(1-3xy+9x^2y^2)}$

Q: What is it the more you take away the larger it becomes?