1 Algebra

1.1 factorization

1. common factor
2. common factor by agroupation of terms
3. cubic differences
4. perfect square trinomial
5. trinomial of the form $x^2 + bx + c$
6. trinomial of the form $ax^2 + bx + c$
7. sum and difference of cubes
8. sintetic divition
9. general formula

1.2 Sintetic divition

Example:

$$x^3 - 5x^2 + 2x + 8$$

Taking the divisors of the independent term

$$p = D_8 = \{\pm 1, \pm 2, \pm 4, \pm 8\}$$

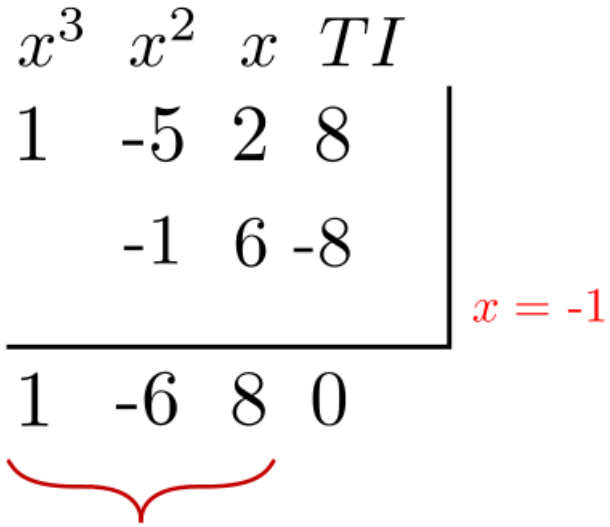
and the divisors of the term with the highest exponent

$$q = D_1 = \{\pm 1\}$$

$$p/q = \{\pm 1, \pm 2, \pm 4, \pm 8\}$$

now all the posibilities are in the space p/q that are integers

so:



then:

$$(x^2 - 6x + 8)(x + 1)$$

then:

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

1.3 cubic differences

$$u^3 + 1 = (u^2 - u + 1)(u + 1)$$
$$u^3 - 1 = (u^2 + u + 1)(u - 1)$$

1.4 general formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1.5 Logarithms

$$\log_a(p) = \frac{\log p}{\log a}$$