

Chapter 6.1 The Greatest Common factor

Terms factor

factor an expression

unit

prime

composite

Method Reducing a composite to a product of prime numbers:

1.

2.

3.

4.

(Eg) 9072

Term Greatest Common Factor (GCF)

Method Determining GCF:

1.

2.

3.

(Eg) Find GCF of $36x^3$ & $42x^7$

(Eg) Find GCF of $4(x-b)$ & $6x(x-b)$

Method Greatest Common factor of a polynomial

1.

2.

3.

4.

(Eg) Factor $6x^2 + 3x$

(Eg) $42xy^6z^{12} - 18y^4z^2$

$$\textcircled{1} 8p^5q^2 + 16p^6q^3 - 12p^4q^7$$

$$\textcircled{2} 4x^2 - 16x + 24$$

$$\textcircled{3} 44x^5y^2 - 11x^3y + 22xy^2$$

$$\textcircled{1} 3x(4x-5) + 6x^2(4x-5)$$

$$\textcircled{2} x^2(r-2s) + y^2(r-2s)$$

$$\textcircled{3} b(p+q) - r(p+q)$$

Method Factoring by Grouping

1.

2.

3.

4.

$$\textcircled{\text{Eg}} ux + uy + vx + vy$$

$$\textcircled{\text{Eg}} 2mn - 8n + 3m - 12$$

$$\textcircled{\text{Eg}} by^2 - 20w + 15yw - 8y$$

$$\textcircled{1} 6x + 6y + 9x^2y + 9xy^2$$

$$\textcircled{2} x^2 - 2x + 4x - 8$$

$$\textcircled{3} 70x^3 - 40x^2 + 42x^2 - 24x$$

$$\textcircled{1} 2x^3 - 5x^2 + 2x - 5$$

$$\textcircled{2} 3x^2 - 3x - 3x + 3$$

$$\textcircled{3} 3x^2 - 18xy + 4xy - 24y^2$$

Chapter 6.2 Factoring Trinomials (for a=1)

Standard trinomial form : $ax^2 + bx + c$

- Trends
1. Quadratic part
 2. Constant part
 3. Linear part

Sign chart for trinomials

Constant	Linear	Factors	Factor ops

Method Factoring an a=1 Trinomial

- 1.
- 2.
- 3.
- 4.
- 5.

Method Factor determination

- 1.
- 2.
- 3.

Ⓔ $x^2 + 5x + 6$

Ⓐ $x^2 - 18x + 80$

Ⓑ $z^2 - 17z - 60$

Ⓒ $x^2 + 17x - 60$

(Eg) $3x^2 + 6x - 24$

① $x^2 - 5xy - 14y^2$

② $2x^3 - 12x^2 + 10x$

③ $x^2 + 6x + 9$

① $12x + x^2 + 32$

② $12 - 4x - x^2$

③ $r^2 - 6rs + 8s^2$

Term Prime Polynomial

(Eg) $m^2 - 2m + 5$

Standard Trinomial Form: $ax^2 + bx + c$

- Trends
1. Quadratic part
 2. Constant part
 3. Linear Part

Method Factoring an $a \neq 1$ trinomial

1.

2.

3.

a.

b.

4.

5.

Ⓔ $2x^2 + 5x + 3$

① $3p^2 - 4p + 1$

② $6p^4 + 21p^3 + 9p$

③ $5x^2 - 16x + 3$

Method Factoring with foil

1.

2.

(Eg) $3a^2 - 11a + 6$

① $6p^2 + 19p + 10$

~~② $60x^2 - 125x + 60$~~

② $60x^2 - 125x + 60$

~~③ $10m^2 - 23m + 12$~~

③ $10m^2 - 23m + 12$

Putting it all together

① $5p^2 + 13p - 6$

② $6m^2 + 11mn - 10n^2$

③ $28x^4 - 58x^3 - 30x^2$