Subtraction of algebraic expressions

To subtract algebraic expressions:

- Arrange the expressions properly (like terms under like terms).
- Change the sign of each term in the second expression.
- Then add the expressions like in normal addition.

Important Points

- Only like terms can be subtracted
- Subtract coefficients, keep variables and powers same
- Always check signs carefully

Examples with Solutions

Example

Subtract: $(5x + 3) – (2x + 1)$

- Change signs: $5x + 3 – 2x – 1$
- x terms: $5x – 2x = 3x$
- Constants: $3 – 1 = 2$

Answer: $3x + 2$

Example

Subtract: $(6a^2 + 4a) – (3a^2 + 2a)$

- Change signs: $6a^2 + 4a – 3a^2 – 2a$
- a^2 terms: $6a^2 – 3a^2 = 3a^2$
- a terms: $4a – 2a = 2a$

Answer: $3a^2 + 2a$

Example

Subtract: $(7x – 5y) – (2x + 3y)$

- Change signs: $7x – 5y – 2x – 3y$
- x terms: $7x – 2x = 5x$

- y terms: –5y – 3y = –8y
- **Answer:** 5x – 8y

Example

Subtract: $(\frac{a}{2} + \frac{b}{3}) - (\frac{a}{4} + \frac{b}{6})$

- Convert fractions to like denominators
- a terms: $\frac{a}{2} - \frac{a}{4} = \frac{2a - a}{4} = \frac{a}{4}$
- b terms: $\frac{b}{3} - \frac{b}{6} = \frac{2b - b}{6} = \frac{b}{6}$

Answer: $\frac{a}{4} + \frac{b}{6}$

Example

Subtract: $(10m^2n - 6mn^2) - (4m^2n + 3mn^2)$

- Change signs: $10m^2n - 6mn^2 - 4m^2n - 3mn^2$
- m^2n terms: $10m^2n - 4m^2n = 6m^2n$
- mn^2 terms: $-6mn^2 - 3mn^2 = -9mn^2$

Answer: $6m^2n - 9mn^2$

Summary Points

- Subtract like terms by subtracting their coefficients.
- Always change the signs of the second expression before adding.
- Keep variable and powers unchanged.
- Watch signs carefully to avoid mistakes.
- Simplify the final expression after subtraction.