Addition of algebraic expressions

To add algebraic expressions, we follow these steps:

- Identify like terms (same variable and same power).
- Add the coefficients of like terms.
- Keep the variables and powers unchanged.
- Combine all like terms.

Important Rules

- Only like terms can be added
- Unlike terms cannot be added together
- Arrange terms neatly to avoid mistakes

Examples with Solutions

Example

Add: 3x + 5 and 2x + 4

- Like terms: 3x + 2x = 5x
- Constants: 5 + 4 = 9
 - ✓ Answer: 5x + 9

Example

Add: $4a^2 + 3a$ and $2a^2 + 7$

- a^2 terms: $4a^2 + 2a^2 = 6a^2$
- a term: 3a
- Constant: 7
 - ✓ Answer: 6a² + 3a + 7

Example

Add: 5x - 2y and 3x + 4y

- x terms: 5x + 3x = 8x
- y terms: -2y + 4y = 2y
 - ✓ **Answer:** 8x + 2y

Example

Add:
$$\frac{a}{2} + \frac{b}{3}$$
 and $\frac{a}{4} + \frac{b}{6}$
• a terms: $\frac{a}{2} + \frac{a}{4} = \frac{2a + a}{4} = \frac{3a}{4}$
• b terms: $\frac{b}{3} + \frac{b}{6} = \frac{2b + b}{6} = \frac{3b}{6} = \frac{b}{2}$

• Answer:
$$\frac{3u}{4} + \frac{b}{2}$$

Example

Add: $7m^2n + 2mn^2$ and $5m^2n + 6mn^2$

- m^2n terms: $7m^2n + 5m^2n = 12m^2n$
- mn^2 terms: $2mn^2 + 6mn^2 = 8mn^2$
 - ✓ Answer: 12m²n + 8mn²

Summary Points

- Add only like terms by adding their coefficients.
- Keep variables and their powers unchanged.
- Rearranging terms helps to group like terms easily.
- Fractions can also be added if they are like terms.
- Final answer must be simplified and neatly written.