

# Expressions and Equations

## Key Vocabulary

Equality or an Identity — Expressions that give exactly the same value

Equation — A number sentence where one side is equal to the other

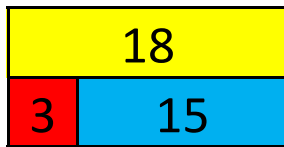
Inverse— The operation that reverses the effect of another operation

Term — A single number or a variable (usually expressed as a letter)

Index—A power such as squared or cubed

Simplify—To collect together like terms to write them in a simplified way

## Equality fact families

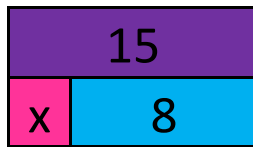


$$18 = 3 + 15$$

$$18 = 15 + 3$$

$$18 - 3 = 15$$

$$18 - 15 = 3$$



$$x + 8 = 15$$

$$8 + x = 15$$

$$15 - 8 = x$$

$$15 - x = 8$$

## Solving Equations

$$\begin{array}{l} 4a = 24 \\ \div 4 \quad \rightarrow \quad a = 6 \end{array}$$

$$\begin{array}{l} x - 6 = 12 \\ + 6 \quad \rightarrow \quad x = 18 \end{array}$$

$$\begin{array}{l} x + 4 = 15 \\ - 4 \quad \rightarrow \quad x = 11 \end{array}$$

## Solving 2 step equations

$$\begin{array}{l} 4x + 6 = 34 \\ - 6 \quad \rightarrow \quad 4x = 28 \\ \div 4 \quad \rightarrow \quad x = 7 \end{array}$$

## Simplifying like terms

- $4a + 6a = 10a$
- $15b - 3b = 12b$
- $2xy + 3x + 5xy = 7xy + 3x$
- $4x^2 + 7x + 2x^2 - 3x = 2x^2 + 4x$