

Chapter 6

Algebraic Equations I

Table 6-1: Constituents of a term in an algebraic expression described

Term	Component		Remarks
	Constant	variable	
$2x^2$	2	x	Connected by multiplication as: $2x^2 = 2 \times x \times x$
$2\pi\sqrt{\frac{l}{g}}$	$2, \pi, g$	l	Connected by multiplication, division and root as: $2\pi\sqrt{\frac{l}{g}} = 2 \times \pi \times \frac{\sqrt{l}}{\sqrt{g}}$
πrl	π	r, l	Connected by multiplication as: $\pi rl = \pi \times r \times l$

Table 6-2: Algebraic equation

Equation	Remark	Validity
1) $v + 1 = 0$	It is an equation that is equal to a constant 0.	It is valid only if $v = -1$.
2) $2x^2 - 5 = 3$	It is an equation that is equal to a constant 3.	It is valid only if $x = 2$ or $x = -2$.
3) $x^3 + 8 = 0$	It is an equation that is equal to a constant 0.	It is valid only if $x = -2$. There are two other values, but we are less concerned with them at this stage. They will become apparent when we cover complex numbers.

Table 6-3: Remarks on identities

Identity	Remark
1) $x^2 - 1 \equiv (x + 1)(x - 1)$	It is an identity because the value of the left-hand side (LHS) is equal to the right-hand side (RHS) for all values of x .
2) $\sin^2 \theta + \cos^2 \theta \equiv 1$	This is an identity because the LHS is always equal to 1 for all values of θ (measured in degrees, radians, or other units).



Thank You

