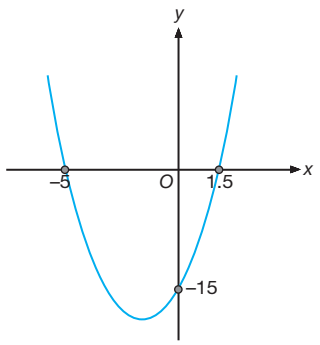
CONCEPT MAP

FORM 4

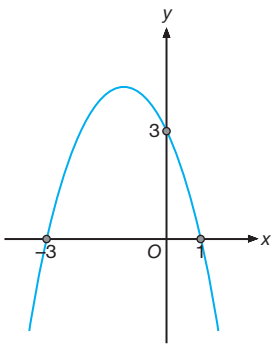
QUADRATIC FUNCTIONS AND EQUATIONS IN ONE VARIABLE

Sketching Graphs of Quadratic Functions

(a) $y = 2x^2 + 7x - 15$



(b) $y = -x^2 - 2x + 3$



Quadratic Expression

Quadratic expression is an expression in the form of $ax^2 + bx + c$, $a \neq 0$, where a, b and c are constants and x is a variable (in only one variable).

Quadratic Functions

A quadratic function is $f(x) = ax^2 + bx + c$, $a \neq 0$, where a, b and c are constants and the highest power of the variable x is 2.

Quadratic Equations

A quadratic equation is an algebraic equation with only one variable such that its highest power is 2, that is $ax^2 + bx + c = 0$, $a \neq 0$, where a, b and c are constants and x is a variable.

Roots of a Quadratic Equation

The roots of a quadratic equation are the values of the variable that satisfy the quadratic equation.

Determining the Roots of a Quadratic Equation by Factorisation

Example

$2m^2 + 7m - 15 = 0$

$(2m - 3)(m + 5) = 0$

$m = \frac{3}{2}$ **or** -5

$2m$ ⊗ m	-3 ⊗ $+5$	$-3m$ ⊕ $10m$
$2m^2$	-15	$7m$

Forming Quadratic Functions Based on Real-Life Situations and Relating it to Quadratic Equations and Solve the Problems by Solving the Quadratic Equations