



# Algebra Checklist

I am able to:

- ☐ use symbols to represent numbers, operations, variables, and relations
- ☐ translate between algebraic symbols and worded expressions
- ☐ evaluate arithmetic operations involving directed numbers
- ☐ simplify algebraic expressions using the four basic operations
- ☐ substitute numbers for variables in algebraic expressions
- ☐ evaluate expressions involving binary operations (other than the four basic operations)
- ☐ apply the distributive law to factorise or expand algebraic expressions
- ☐ simplify algebraic fractions
- ☐ use the laws of indices to manipulate expressions with integral indices
- ☐ solve linear equations in one unknown
- ☐ solve simultaneous linear equations, in two unknowns, algebraically
- ☐ solve a simple linear inequality in one unknown
- ☐ change the subject of formulae
- ☐ factorise algebraic expressions
  - ☐  $a^2 - b^2$
  - ☐  $a^2 \pm 2ab + b^2$
  - ☐  $ax + bx + ay + by$
  - ☐  $ax^2 + bx + c$  where  $a, b$ , and  $c$  are integers and  $a \neq 0$

- ☐ rewrite a quadratic expression in the form  $a(x + h)^2 + k$   
*i.e., completing the square of a quadratic expression*
- ☐ solve quadratic equations algebraically
  - ☐ formula
  - ☐ factorization
  - ☐ completing the square
- ☐ solve a pair of equations in two variables when one equation is quadratic or nonlinear and the other linear
- ☐ prove two algebraic expressions to be identical
- ☐ represent direct and inverse variation symbolically
  - ☐  $y$  varies directly as  $x$ :  $y \propto x$ ,  $y = kx$
  - ☐  $y$  varies inversely as  $x$ :  $y \propto \frac{1}{x}$ ,  $y = \frac{k}{x}$
- ☐ solve problems involving direct variation and inverse variation