# Higher Check In - 6.01 Algebraic expressions

1. Simplify .
2. Factorise .
3. Multiply out the brackets and simplify .
4. Simplify .
5. Expand the brackets and simplify .
6. Show that .
7. Sue says that the area of the trapezium can be given by the expression .

Ambia says that the area can be written as . Show that both Sue and Ambia are correct.







1. Explain, using algebra, why the sum of two consecutive odd numbers is always even.
2. The area of the rectangle below is given by the expression cm2.

The width is given by cm2. Write an expression for the length.

cm2

1. A particle travels m at a speed of 2 m / s and m at a speed of 3 m / s.

Write a simplified expression for the total time taken.

**Extension**

Match each quadratic expression with its factorised form and completed square form.

There is one blank space in each column for you to fill in the missing expression to complete each set.

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Answers

1. **
2. 
3. 
4. 
5. 
6. 



1. Area of a trapezium is given by the formula A = 

so the area is given by A =  = 

= 

= 

After completing the square, this can also be written as  so both Sue and Ambia are correct.

1. Two consecutive odd numbers can be denoted by  and .



This can be factorised to give  which will be a multiple of 4 for any whole number *n*.

1. cm
2.  =  =  seconds

**Extension**

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| AO1 | 1 | Simplify an algebraic expression |  |  |  |  | AO1 | 1 | Simplify an algebraic expression |  |  |  |
| AO1 | 2 | Factorise a quadratic expression |  |  |  |  | AO1 | 2 | Factorise a quadratic expression |  |  |  |
| AO1 | 3 | Expand brackets and collect like terms |  |  |  |  | AO1 | 3 | Expand brackets and collect like terms |  |  |  |
| AO1 | 4 | Simplify a product of two algebraic expressions involving indices |  |  |  |  | AO1 | 4 | Simplify a product of two algebraic expressions involving indices |  |  |  |
| AO1 | 5 | Expand three brackets and simplify |  |  |  |  | AO1 | 5 | Expand three brackets and simplify |  |  |  |
| AO2 | 6 | Add two algebraic fractions and simplify |  |  |  |  | AO2 | 6 | Add two algebraic fractions and simplify |  |  |  |
| AO2 | 7 | Translate a word problem into two equivalent expressions for area by expanding brackets and completing the square |  |  |  |  | AO2 | 7 | Translate a word problem into two equivalent expressions for area by expanding brackets and completing the square |  |  |  |
| AO2 | 8 | Prove a numerical result using algebra |  |  |  |  | AO2 | 8 | Prove a numerical result using algebra |  |  |  |
| AO3 | 9 | Factorise a quadratic expression to solve a problem involving area |  |  |  |  | AO3 | 9 | Factorise a quadratic expression to solve a problem involving area |  |  |  |
| AO3 | 10 | Solve a problem involving algebraic fractions |  |  |  |  | AO3 | 10 | Solve a problem involving algebraic fractions |  |  |  |
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