

Algebra 4H Assessment

Higher Level



All questions

Clip	Grade	Title of clip	Question(s)	Marked out of	Score	%
178.....	6.....	Product of Three Binomials	1	9	___	___
179.....	6.....	Iteration - Trial and Improvement	2 - 4	13	___	___
180.....	6.....	Iterative Processes	5 - 6	9	___	___
190.....	7.....	Rearranging Difficult Formulae	7	8	___	___
191.....	7.....	Solving Quadratics with the Formula	8 - 9	11	___	___
192.....	7.....	Factorising Hard Quadratics	10 - 11	10	___	___

Out of 60 TOTAL SCORE _____

Final Percentage %

1) Expand and simplify:

a) $x(2x + 1)(x + 3)$

_____ 3

b) $(3x + 2)(x - 1)(2x + 5)$

_____ 3

c) $(x - 3)(x + 3)(5x - 2)$

_____ 3

2) The equation $x^3 - x = 45$

has a solution between 3 and 4.

Use a trial and improvement method to find this solution, giving your answer correct to 1 decimal place.

You must show all your working.

$x =$ _____ 4

3) Use trial and improvement to solve

$$x^2 + \frac{1}{x} = 27$$

Give your answer to 1 decimal place.

You must show all your working.

$x =$ _____ 4

4) A prism has volume $V = x^3 + 3x^2$

The volume of the prism is 120 cm^3

Use trial and improvement to work out the value of x to 1 decimal place.

You must show all your working.

$x =$ _____ 5

5) A sequence is defined by the term-to-term rule

$$u_{n+1} = u_n^2 - 2u_n + 11$$

Give that $u_1 = 3$, find u_2 , u_3 and u_4 .

$u_2 =$ _____ 2

$u_3 =$ _____ 2

$u_4 =$ _____ 2

6) A sequence is defined by the term-to-term rule

$$x_{n+1} = 7 - \frac{1}{x_n}$$

Using a starting value of $x_1 = 1$,

find a solution to $x = 7 - \frac{1}{x}$

Give your answer to 2 significant figures.

$x =$ _____ 3

7) a) Rearrange $L = \frac{x}{y} - 2$ to make x the subject.

$x =$ _____ 2

b) Rearrange $2x + 1 = 4(2y - x)$ to make x the subject.

$x =$ _____ 3

c) Rearrange $y = \frac{3x - 4}{7 - x}$ to make x the subject.

$x =$ _____ 3

8) Solve:

a) $x^2 + 8x + 5 = 0$

Give your answers to 2 decimal places.

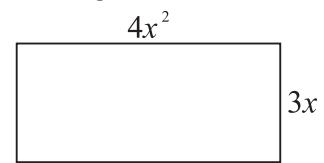
$x =$ _____ , _____ 3

b) $2x^2 - 6x - 1 = 0$

Give your answers to 3 significant figures.

$x =$ _____ , _____ 3

9) A rectangle has length $4x^2$ and width $3x$.



The perimeter of the rectangle is 13 cm.

Work out the length of the rectangle.
Give your answer to 1 decimal place.

5

10) Factorise:

a) $6x^2 + 11x + 3$

_____ 3

b) $3x^2 + 13x - 10$

_____ 3

11) Solve:

$3x^2 - 34x + 63 = 0$

$x =$ _____ , _____ 4