

# Algebra 1F Assessment

Foundation Level



*All questions*

Clip	Grade	Title of clip	Question(s)	Marked out of	Score	%
7.....	1.....	Algebraic conventions.....	1 - 2	8	___	___
8.....	1.....	Coordinates.....	3	6	___	___
33.....	2.....	Simplifying - Addition and Subtraction.....	4 - 6	12	___	___
34.....	2.....	Simplifying - Multiplication.....	7 - 9	10	___	___
35.....	2.....	Simplifying - Division.....	10 - 12	8	___	___
36.....	2.....	Function Machines.....	13	4	___	___
37.....	2.....	Generating a Sequence - Term to Term.....	14 - 15	6	___	___
93.....	3.....	Expanding Brackets.....	16	8	___	___
94.....	3.....	Simple Factorisation.....	17	10	___	___
95.....	3.....	Substitution.....	18 - 21	16	___	___
96.....	3.....	Straight Line Graphs.....	22 - 23	8	___	___
97.....	3.....	The Gradient of a Line.....	24 - 25	6	___	___
98.....	3.....	Drawing Quadratic Graphs.....	26	6	___	___
99.....	3.....	Sketching Functions.....	27	2	___	___
100.....	3.....	Solving Equations using Flowcharts.....	28	4	___	___
101.....	3.....	Subject of a Formula using Flowcharts.....	29	2	___	___
102.....	3.....	Generating a Sequence from the $n$ th Term.....	30	4	___	___
103.....	3.....	Finding the $n$ th Term.....	31	2	___	___
104.....	3.....	Special Sequences.....	32 - 33	3	___	___

*Out of 125*      TOTAL  
SCORE \_\_\_\_\_

Final  
Percentage  %

1) Write the following in their simplest forms using algebraic notation:

a)  $9 \times x =$  \_\_\_\_\_ 1

b)  $x \times 7 =$  \_\_\_\_\_ 1

c)  $x \div 5 =$  \_\_\_\_\_ 1

d)  $x + x + x + x =$  \_\_\_\_\_ 1

2) Write the following using algebraic notation:

a) I think of a number, multiply it by 3 and then subtract 2.

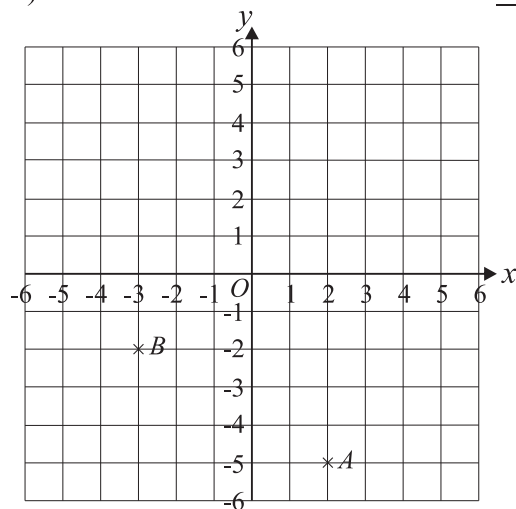
\_\_\_\_\_ 2

b) I think of a number, add 2 and then multiply the result by 6.

\_\_\_\_\_ 2

3) a) Write down the coordinates of A. \_\_\_\_\_ 2

b) Write down the coordinates of B. \_\_\_\_\_ 2



c) Plot the point  $(-5, 3)$  and label it C. 2

4) Simplify the following:

a)  $2x + 5x =$  \_\_\_\_\_ 1

b)  $7y - 4y =$  \_\_\_\_\_ 1

c)  $3x + x =$  \_\_\_\_\_ 1

d)  $2x - 8x + 3x =$  \_\_\_\_\_ 1

5) Simplify the following:

a)  $4xy^2 + 2xy^2 =$  \_\_\_\_\_ 1

b)  $2x^2y^3 - 7x^2y^3 + 6x^2y^3 =$  \_\_\_\_\_ 1

6) Simplify the following:

a)  $2x + 5y + 4x + 3y =$  \_\_\_\_\_ 2

b)  $8x + 4y - 7x - y =$  \_\_\_\_\_ 2

c)  $3x - 5y - x - 6y =$  \_\_\_\_\_ 2

7) Simplify the following:

a)  $x \times x \times x =$  \_\_\_\_\_ 1

b)  $x^2 \times x^5 =$  \_\_\_\_\_ 1

c)  $2x \times 4x =$  \_\_\_\_\_ 1

d)  $3x^2 \times 2x^5 =$  \_\_\_\_\_ 1

e)  $x \times 2x^3 \times 4x^2 =$  \_\_\_\_\_ 1

8) Simplify the following:

a)  $7 \times 4t =$  \_\_\_\_\_ 1

b)  $3xy^2 \times 4x^3y^5 =$  \_\_\_\_\_ 1

9) Simplify the following:

a)  $(x^3)^2 =$  \_\_\_\_\_ 1

b)  $(x^5)^4 =$  \_\_\_\_\_ 1

c)  $(2x^4)^3 =$  \_\_\_\_\_ 1

10) Simplify the following:

a)  $x^5 \div x^3 =$  \_\_\_\_\_ 1

b)  $\frac{x^5 \times x^3}{x^2} =$  \_\_\_\_\_ 1

c)  $\frac{x^4 \times x^7}{x^2 \times x^3} =$  \_\_\_\_\_ 1

11) Simplify the following:

a)  $12x^5 \div 3x =$  \_\_\_\_\_ 1

b)  $\frac{14x^7}{2x^3} =$  \_\_\_\_\_ 1

c)  $\frac{5x^2 \times 4x^3}{10x^4} =$  \_\_\_\_\_ 1

12) Simplify the following:

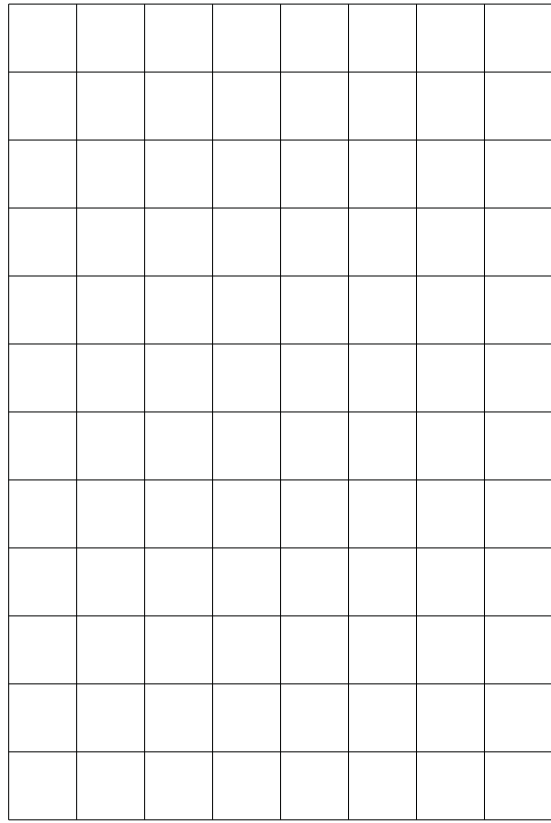
a)  $\frac{(x-3)^3}{(x-3)} =$  \_\_\_\_\_ 1

b)  $\frac{12(2x+3)^6}{2(2x+3)^4} =$  \_\_\_\_\_ 1



23) On the grid, draw the graph of  $2x + y = 5$  for values of  $x$  between -2 and 3.

4



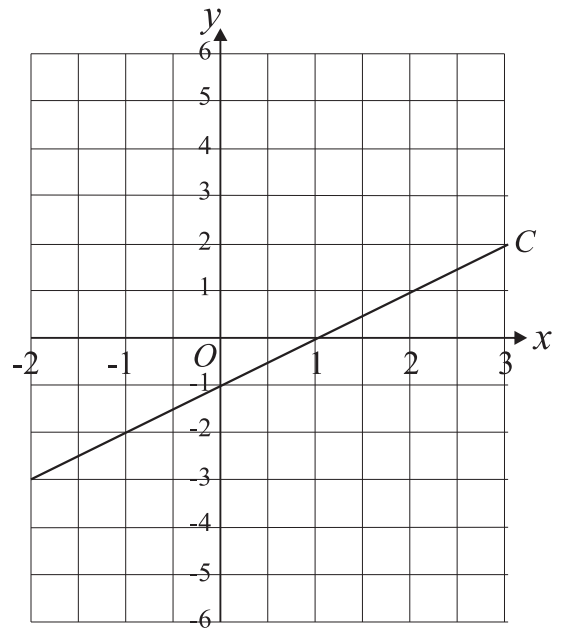
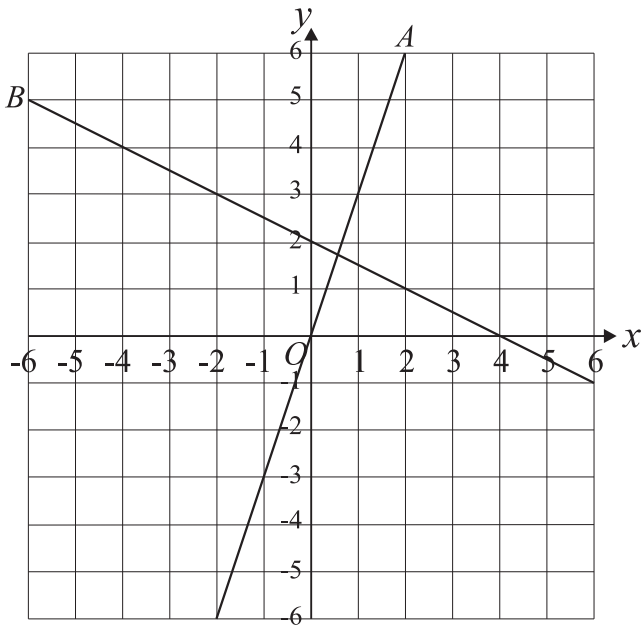
24) Find the gradients of lines  $A$  and  $B$ .

a) Gradient of  $A$  is \_\_\_\_\_ 2

b) Gradient of  $B$  is \_\_\_\_\_ 2

25) Find the gradient of line  $C$ .

Gradient of  $C$  is \_\_\_\_\_ 2

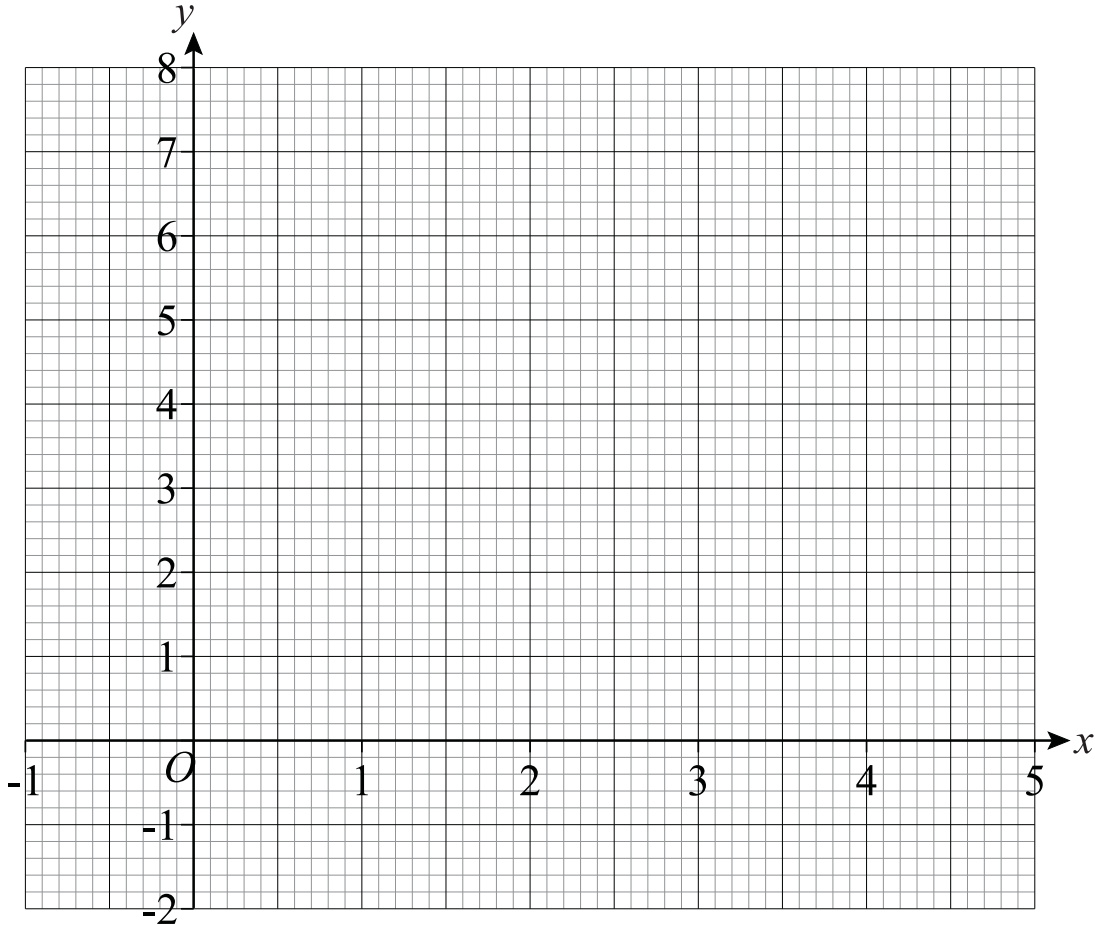


26) a) Complete the table of values for the equation  $y = x^2 - 4x + 3$

$x$	-1	0	1	2	3	4	5
$y$				-1		3	

2

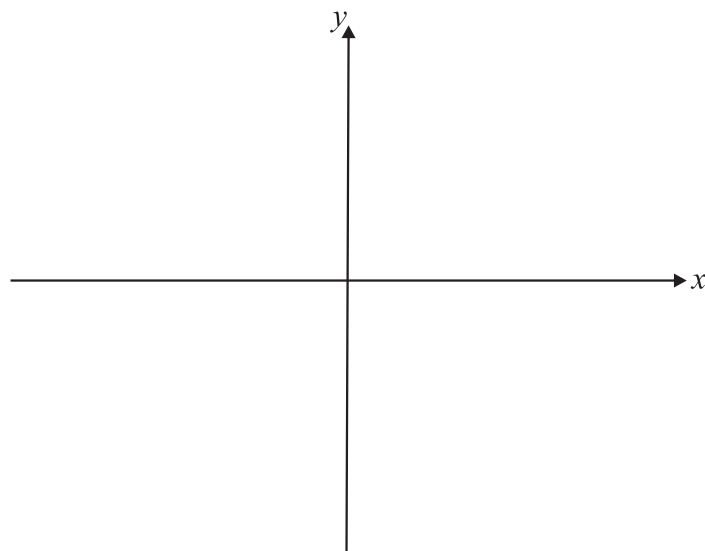
b) Draw the graph of  $y = x^2 - 4x + 3$  2



c) Using your graph, solve  $x^2 - 4x + 3 = 2$

$x = \underline{\hspace{2cm}}$  or  $x = \underline{\hspace{2cm}}$  2

27) On the axes below, sketch the graph of  $y = x^2 - 4$  2



28) Using a flowchart, or otherwise, solve the following equations:

a)  $2(4x - 1) = 26$

$x =$  \_\_\_\_\_      **2**

b)  $4\left(\frac{x}{5} + 3\right) = 32$

$x =$  \_\_\_\_\_      **2**

29) Rearrange the formula  $w = 5\left(\frac{x}{2} - y\right)$  to make  $x$  the subject.

$x =$  \_\_\_\_\_      **2**

30) a) The  $n$ th term of a number sequence is  $5n - 3$   
Write down the 7th term of the sequence \_\_\_\_\_      **2**

b) The  $n$ th term of a number sequence is  $3n^2 - 4$   
Write down the 10th term of the sequence \_\_\_\_\_      **2**

31) Here are the first five terms of an arithmetic sequence:  
7, 11, 15, 19, 23  
Find an expression for the  $n$ th term of this sequence. \_\_\_\_\_      **2**

32) Here are the first five terms of a number sequence:  
80, 40, 20, 10, 5  
What is the term to term rule for this sequence? \_\_\_\_\_      **1**

33) The  $n$ th term for triangular numbers is  $\frac{n(n+1)}{2}$   
Use this to work out the 6th triangular number. \_\_\_\_\_      **2**