Algebra 1H Assessment

Higher Level

 *All questions*

Clip	Grade	Title of clip	Question(s)	Marked out of	Score	%
33	2	Simplifying - Addition and Subtraction	1 - 3	12	___	___
34	2	Simplifying - Multiplication	4 - 6	10	___	___
35	2	Simplifying - Division	7 - 9	9	___	___
36	2	Function Machines	10	4	___	___
93	3	Expanding Brackets	11	8	___	___
94	3	Simple Factorisation	12	10	___	___
95	3	Substitution	13 - 16	17	___	___
96	3	Straight Line Graphs	17 - 18	8	___	___
97	3	The Gradient of a Line	19	4	___	___
98	3	Drawing Quadratic Graphs	20	6	___	___
99	3	Sketching Functions	21	2	___	___
102	3	Generating a Sequence from the *n*th Term	22	5	___	___
103	3	Finding the *n*th Term	23	2	___	___
104	3	Special Sequences	24 - 25	3	___	___

Out of 100 TOTAL SCORE _____

Final Percentage [ ] %

1) Simplify the following:

a) $2x + 5x =$ _____ **1**

b) $7y - 4y =$ _____ **1**

c) $3x + x =$ _____ **1**

d) $2x - 8x + 3x =$ _____ **1**

2) Simplify the following:

a) $4xy^2 + 2xy^2 =$ _____ **1**

b) $2x^2y^3 - 7x^2y^3 + 6x^2y^3 =$ _____ **1**

3) Simplify the following:

a) $2x + 5y + 4x + 3y =$ _____ **2**

b) $8x + 4y - 7x - y =$ _____ **2**

c) $3x - 5y - x - 6y =$ _____ **2**

4) 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**

5) Simplify the following:

a) $7 \times 4t =$ _____ **1**

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

6) Simplify the following:

a) $(x^3)^2 =$ _____ **1**

b) $(x^5)^4 =$ _____ **1**

c) $(2x^4)^3 =$ _____ **1**

7) 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**

8) Simplify the following:

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

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

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

9) Simplify the following:

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

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

10) Complete the table for this function machine:

In	Out	
1		**1**
5		**1**
	29	**1**
x		**1**

11) Expand the following:

a) $2(4x - 3) =$ _____ **2**

b) $x(x + 7) =$ _____ **2**

c) $2x(5x + 3) =$ _____ **2**

d) $4x(6x - 5y) =$ _____ **2**

12) Factorise fully:

a) $2x + 20 =$ _____ **2**

b) $9x + 12 =$ _____ **2**

c) $x^2 - 7x =$ _____ **2**

d) $3x^2 + 2x =$ _____ **2**

e) $8x^4y + 2x^3 =$ _____ **2**

13) If $x = 6$, find the value of:

a) $2x =$ _____ **1**

b) $x^2 =$ _____ **1**

c) $5 + 4x =$ _____ **1**

d) $3x - 20 =$ _____ **1**

14) If $x = 5$ and $y = -3$, find the value of:

a) $2x + y$ = _____ **2**

b) $3x - y$ = _____ **2**

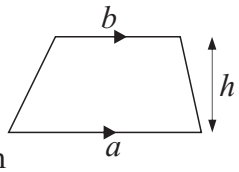
c) $2x^2$ = _____ **2**

d) $x^2 + 2y^2$ = _____ **3**

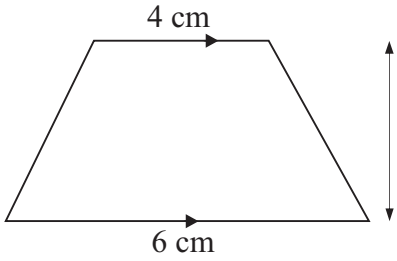
15) The cost, £C, of hiring a carpet cleaner for d days is given by $C = 5d + 10$.
Bill hires the cleaner for 6 days.

How much does it cost him? _____ **2**

16) The area of a trapezium is given by $A = \frac{1}{2}(a + b)h$



Find the area of this trapezium



2

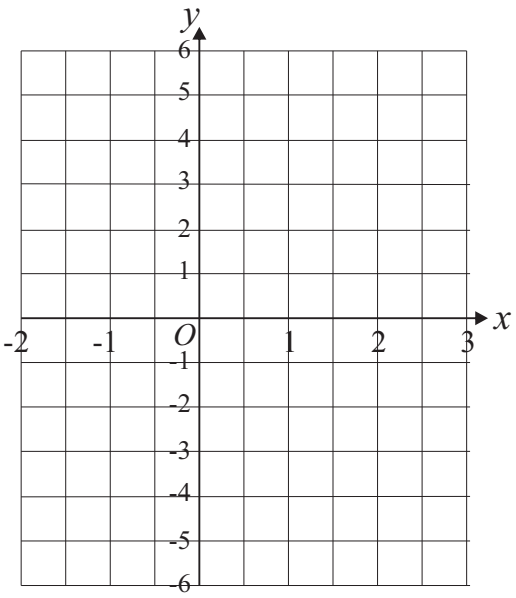
Area = _____ cm^2

17) a) Complete the table of values for $y = 2x - 1$

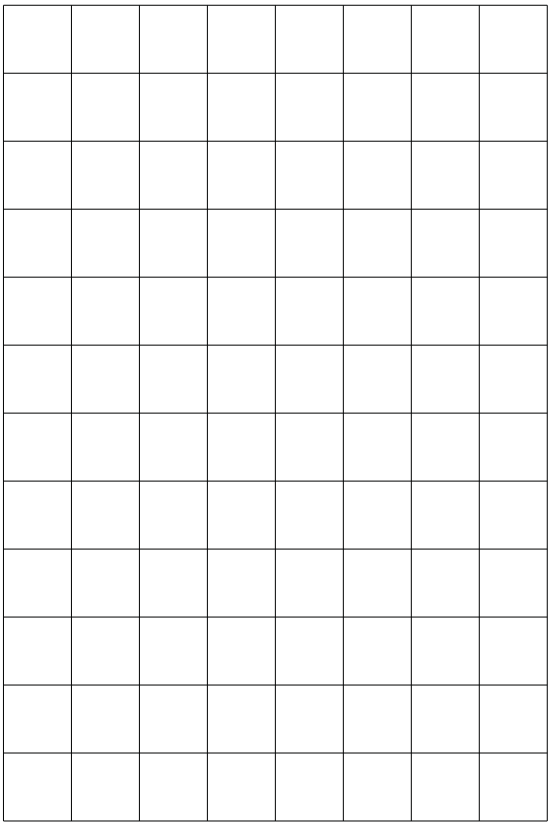
x	-2	-1	0	1	2	3
y		-3				5

2

b) Draw the graph of $y = 2x - 1$ **2**



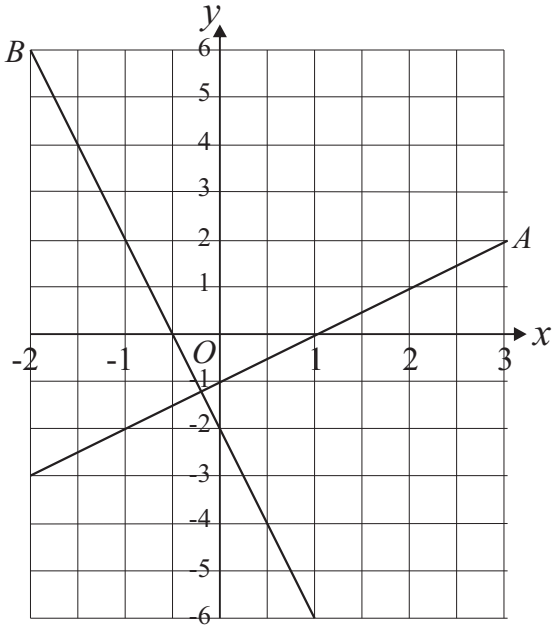
18) On the grid, draw the graph of $2x + y = 5$ for values of x between -2 and 3. **4**



19) Find the gradients of lines A and B.

a) Gradient of A is _____ **2**

b) Gradient of B is _____ **2**

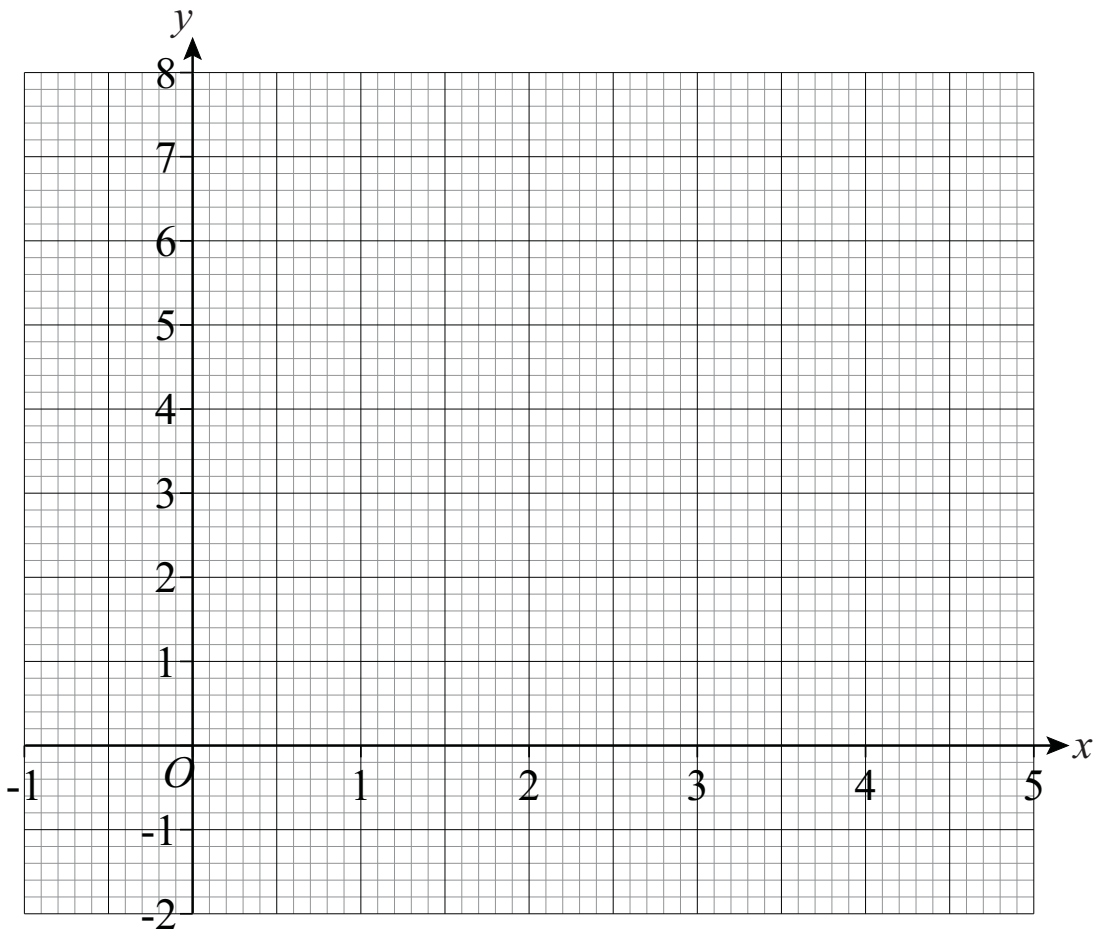


20) a) Complete the table of values for the equation $y = x^2 - 4x + 3$

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

2

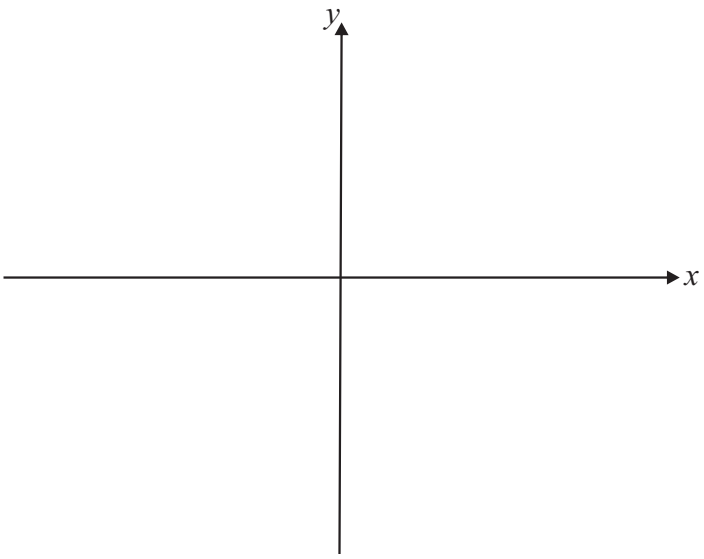
b) Draw the graph of $y = x^2 - 4x + 3$ **2**



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

$x =$ _____ or $x =$ _____ **2**

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



22) a) The nth term of a number sequence is $5n - 3$

Write down the 7th term of the sequence ____ **2**

b) The nth term of a number sequence is $3n^2 - 4$

Write down the 10th term of the sequence ____ **3**

23) Here are the first five terms of an arithmetic sequence:

7, 11, 15, 19, 23

Find an expression for the nth term of this sequence. _____ **2**

24) 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**

25) The nth term for triangular numbers is $\frac{n(n+1)}{2}$

Use this to work out the 6th triangular number. _____ **2**