

Algebra 1

Calculator allowed for all questions

Foundation



Higher



All questions

Time: 45 minutes

Name: _____

	<i>Grade</i>	<i>Title of clip</i>	<i>Marks</i>	<i>Score</i>	<i>Percentage</i>
Clip 102	C	Algebraic Simplification (qu. 1, 2)	36	_____	_____
Clip 103	C	Brackets (qu. 3)	18	_____	_____
Clip 104	C	Simple factorisation (qu. 4)	8	_____	_____
Clip 105	C	Solving equations (qu. 5)	24	_____	_____
Clip 106	C	Forming equations (qu. 6)	5	_____	_____
Clip 107	C	Subject of a formula (qu. 7)	8	_____	_____
Clip 108	C	Inequalities (qu. 8)	9	_____	_____
Clip 109	C	Solving inequalities (qu. 9)	6	_____	_____
Clip 110	C	Trial and improvement (qu. 10)	4	_____	_____
Clip 111	C	Indices (qu. 11, 12, 13, 14)	8	_____	_____
Clip 112	C	<i>n</i> th term (qu. 15)	4	_____	_____

Out of 130

TOTAL
SCORE _____

FINAL
PERCENTAGE

%

1) Simplify the following:

a) $x + x =$ _____ 1

b) $a \times a =$ _____ 1

c) $3x + 2x =$ _____ 1

d) $4a \times 3a =$ _____ 1

e) $2d + d =$ _____ 1

f) $2d \times d =$ _____ 1

g) $5x + 2x + 3y + y =$ _____ 2

h) $7a - 2a + 6x - 4x =$ _____ 2

i) $4a + 3y + 2a + 8y =$ _____ 2

j) $7x + 5t - 3x - 4t =$ _____ 2

k) $4y - 3t - y - 5t =$ _____ 2

l) $7g + 4e + g - 8e =$ _____ 2

m) $x^2 \times x^4 =$ _____ 1

n) $x^4 \times x =$ _____ 1

o) $2x^2 \times 3x^5 =$ _____ 2

p) $x^2y \times x^2y^3 =$ _____ 2

q) $3ey^2 \times 2e^2y^4 =$ _____ 2

2) Expand and simplify where possible:

a) $2(x + 3) =$ _____ 2

b) $3(2x - 3) =$ _____ 2

c) $3(2x + 5) + 2(5x + 1) =$ _____ 2

d) $4(3a + 1) + 2(a - 3) =$ _____ 2

e) $7(3a - 2) - 2(a - 3) =$ _____ 2

3) Expand and simplify:

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

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

c) $(x - 3)(x - 1)$
_____ 3

d) $(3x + 2)(2x + 5)$
_____ 3

e) $(2x - 3)(5x + 1)$
_____ 3

f) $(3x - 1)^2$
_____ 3

4) Factorise:

a) $2x - 6$
_____ 2

b) $x^2 + x$
_____ 2

c) $2x^2 + 8x$
_____ 2

d) $8x^2 - 12x$
_____ 2

5) Solve these equations:

a) $x + 3 = 8$ $x =$ _____ 2

b) $x - 4 = 7$ $x =$ _____ 2

c) $2x = 12$ $x =$ _____ 2

d) $\frac{x}{3} = 4$ $x =$ _____ 2

e) $3x + 4 = 16$ $x =$ _____ 2

f) $2x - 1 = 11$ $x =$ _____ 2

g) $\frac{x}{2} + 1 = 7$ $x =$ _____ 2

h) $2(x + 3) = 20$ $x =$ _____ 2

i) $\frac{3x}{2} - 1 = 2$ $x =$ _____ 2

j) $3x + 1 = 2x + 9$ $x =$ _____ 2

k) $2x + 7 = 5x - 2$ $x =$ _____ 2

l) $2(2x - 3) = 2x + 1$ $x =$ _____ 2

6)

$x + 3$



$3x + 1$

a) Form an expression in x for the perimeter of the rectangle, above.

_____ 3

b) If the perimeter of the rectangle is 60cm form an equation and solve it to find x .

$x =$ _____ 2

7) Make x the subject of these formulas

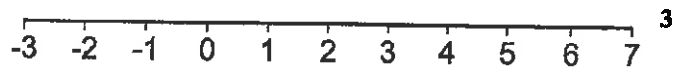
a) $x + y = t$ $x =$ _____ 2

b) $ax = y$ $x =$ _____ 2

c) $ax - t = y$ $x =$ _____ 2

d) $3a^2 + yx = 7$ $x =$ _____ 2

8) a) Represent $-1 \leq x < 6$ on the number line below



b) Write down this inequality



_____ 3

c) x is an integer and $-5 < x \leq 2$
Write down all the possible values of x .

_____ 3

9) Solve these inequalities to find x

a) $x + 3 < 7$ _____ 2

b) $5x > 10$ _____ 2

c) $2x - 7 \leq 3$ _____ 2

- 10) The equation $x^3 - 2x^2 = 43$ has a solution between $x = 4$ and $x = 5$
 Use a trial and improvement method to find this solution to 1 decimal place.
All working must be shown.

$x =$ _____ **4**

11) Write as a power of 4, $4^3 \times 4^2$ _____ **2**

12) Write as a power of 6, $6^5 \div 6^2$ _____ **2**

13) Simplify the following: $x^5 \times x^2$ _____ **2**

14) Simplify the following: $\frac{y \times y^6}{y^2}$ _____ **2**

- 15) Find the n th term of the following two number sequences:

a) 2, 5, 8, 11, 14, _____ **2**

b) 8, 13, 18, 23, 28, _____ **2**

Algebra 2

Calculator allowed for all questions

Foundation

Higher



All questions

Time for the test: 60 minutes

Name: _____

	<i>Grade</i>	<i>Title of clip</i>	<i>Marks</i>	<i>Score</i>	<i>Percentage</i>
Clip 66	D	Substitution (qu. 1, 2, 3)	8	_____	_____
Clip 113	C	Straight line graphs (qu. 4, 5)	9	_____	_____
Clip 114	C	Finding the equation of a line (qu. 6)	2	_____	_____
Clip 115	C	Simultaneous equations (qu. 7)	2	_____	_____
Clip 116	C	Quadratic graphs (qu. 8, 9)	10	_____	_____
Clip 117	C	Real-life graphs (qu. 10)	4	_____	_____
Clip 140	B	Factorising quadratics (qu. 11)	8	_____	_____
Clip 141	B	Difference of two squares (qu. 12)	4	_____	_____
Clip 142	B	Simultaneous equations (qu. 13, 14)	6	_____	_____
Clip 143	B	$y = mx + c$ (qu. 15, 16)	5	_____	_____
Clip 144	B	Regions (qu. 17)	5	_____	_____
Clip 145	B	Graphs of cubics (qu. 18)	5	_____	_____
Clip 146	B	Shapes of functions (qu. 19)	4	_____	_____

Out of 72

TOTAL
SCORE _____

FINAL
PERCENTAGE

_____ %

1) $y = 2x + 7$

$x = 9$

Work out the value of y .

$y = \underline{\hspace{2cm}}$ 2

2) $s = t^2 - at$

$a = 4 \quad t = -3$

Work out the value of s .

$s = \underline{\hspace{2cm}}$ 3

3) $v^2 = u^2 + 2as$

$u = 3 \quad a = 2.5 \quad s = 8$

Work out a value of v .

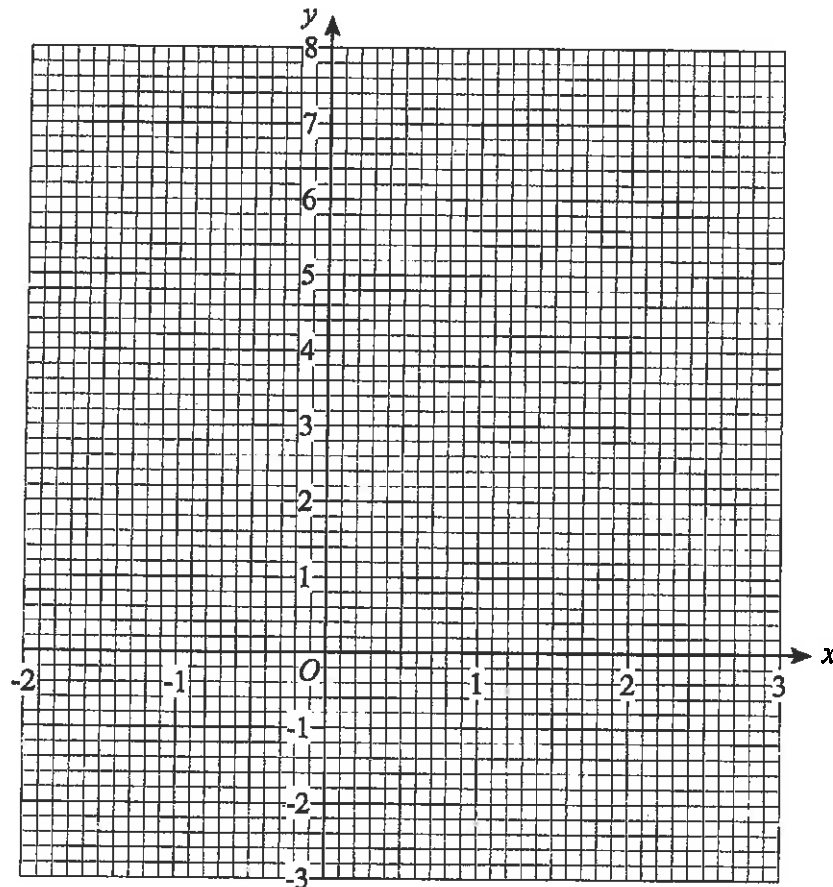
$v = \underline{\hspace{2cm}}$ 3

4) a) Complete the table of values for $y = 2x + 1$

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

2

b) On the grid, draw the graph of $y = 2x + 1$ 2



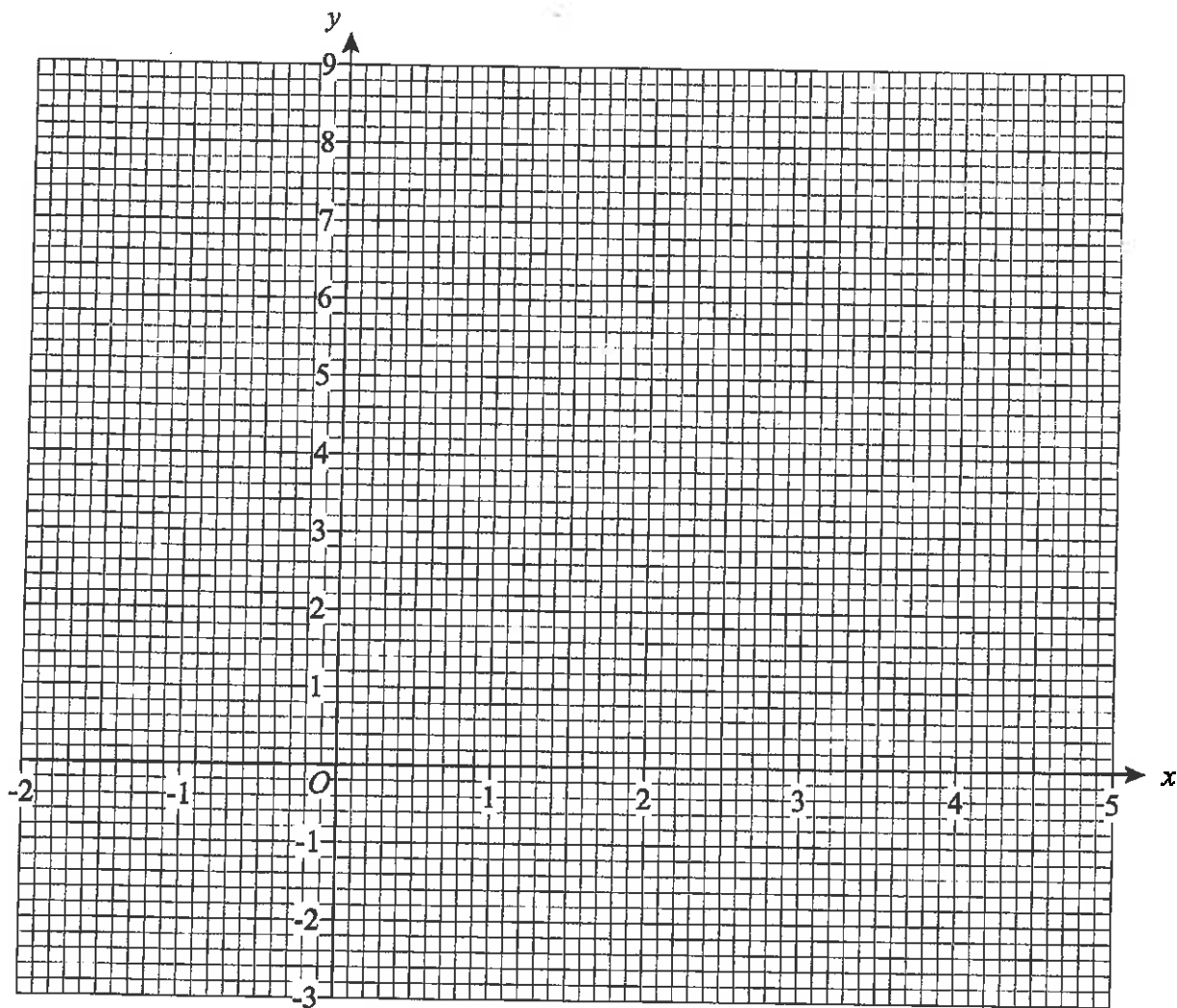
c) Use your graph to find

(i) the value of y when $x = -1.3$ $y = \underline{\hspace{2cm}}$ 1

(ii) the value of x when $y = 5.8$ $x = \underline{\hspace{2cm}}$ 1

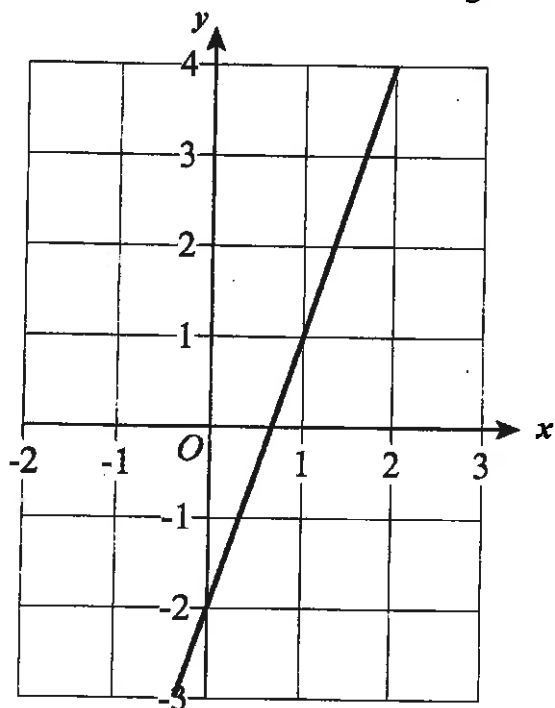
5) On the grid below, draw the graph of $y = 5 - 2x$ for values of x from -2 to 4

3

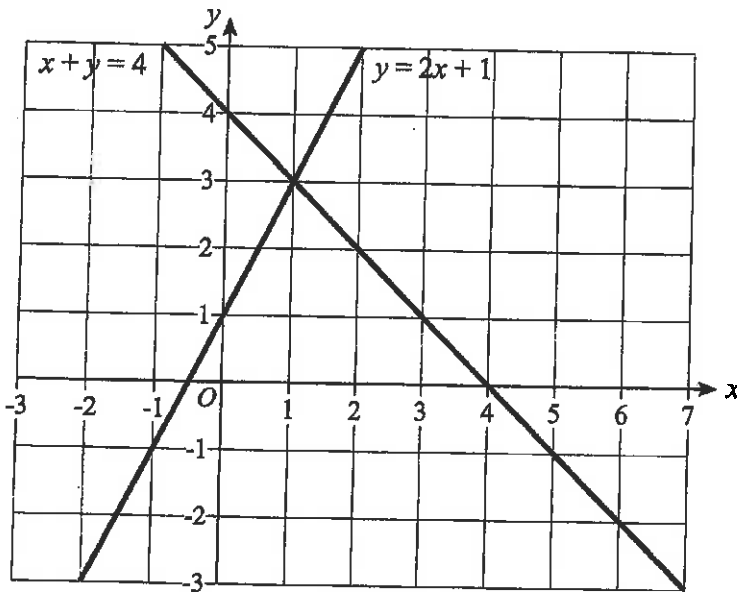


6) What is the equation of the line on the grid below? _____

2



- 7) Use the graph below to solve the simultaneous equations $y = 2x + 1$ and $x + y = 4$



$x = \underline{\quad\quad}$ 1

$y = \underline{\quad\quad}$ 1

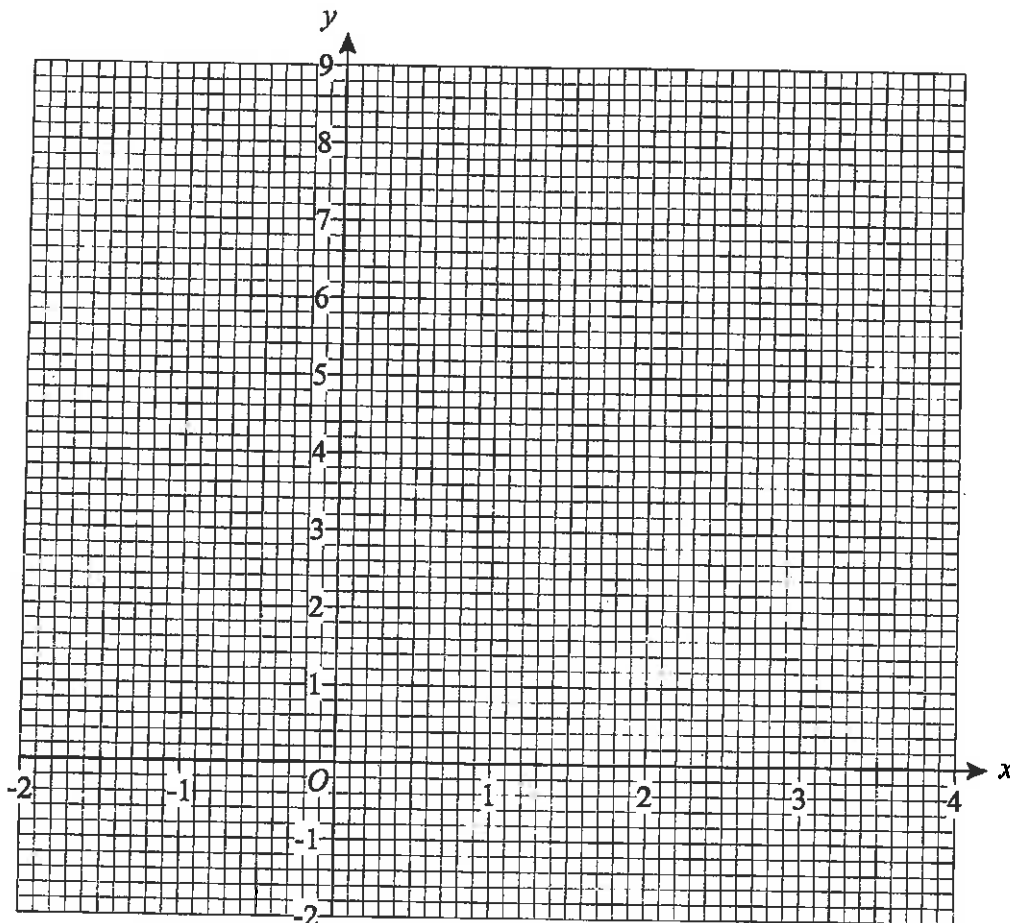
- 8) a) Complete the table of values for $y = (2 + x)(4 - x)$

x	-2	-1	0	1	2	3	4
y		5	8				

2

- b) On the grid, draw the graph of $y = (2 + x)(4 - x)$ for values of x from -2 to 4.

2

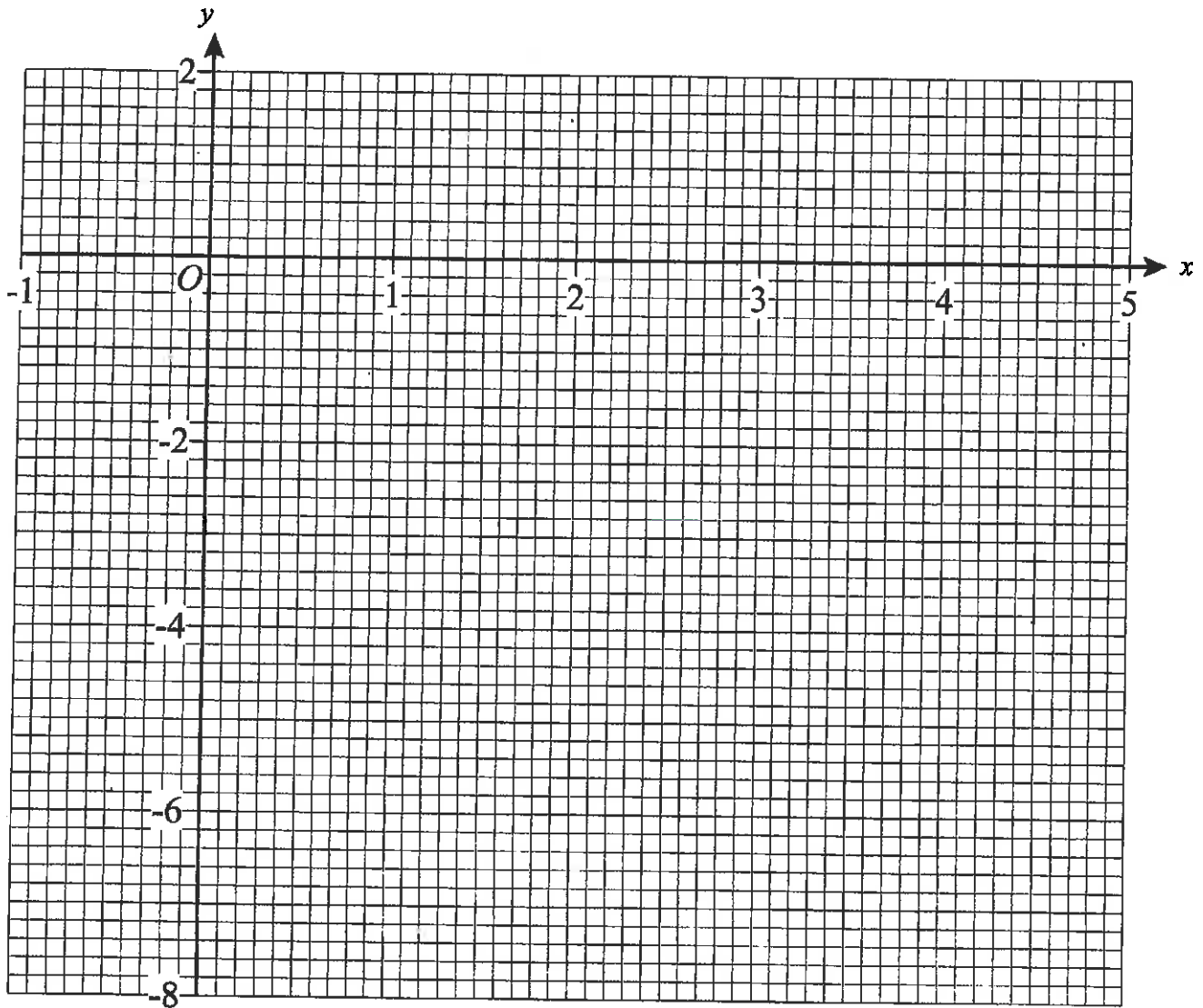


9) a) Complete the table of values for $y = x^2 - 4x - 3$

x	-1	0	1	2	3	4	5
y		-3	-6			-3	

2

b) On the grid, draw the graph of $y = x^2 - 4x - 3$ 2



c) Use your graph to estimate the values of x when $y = -5$

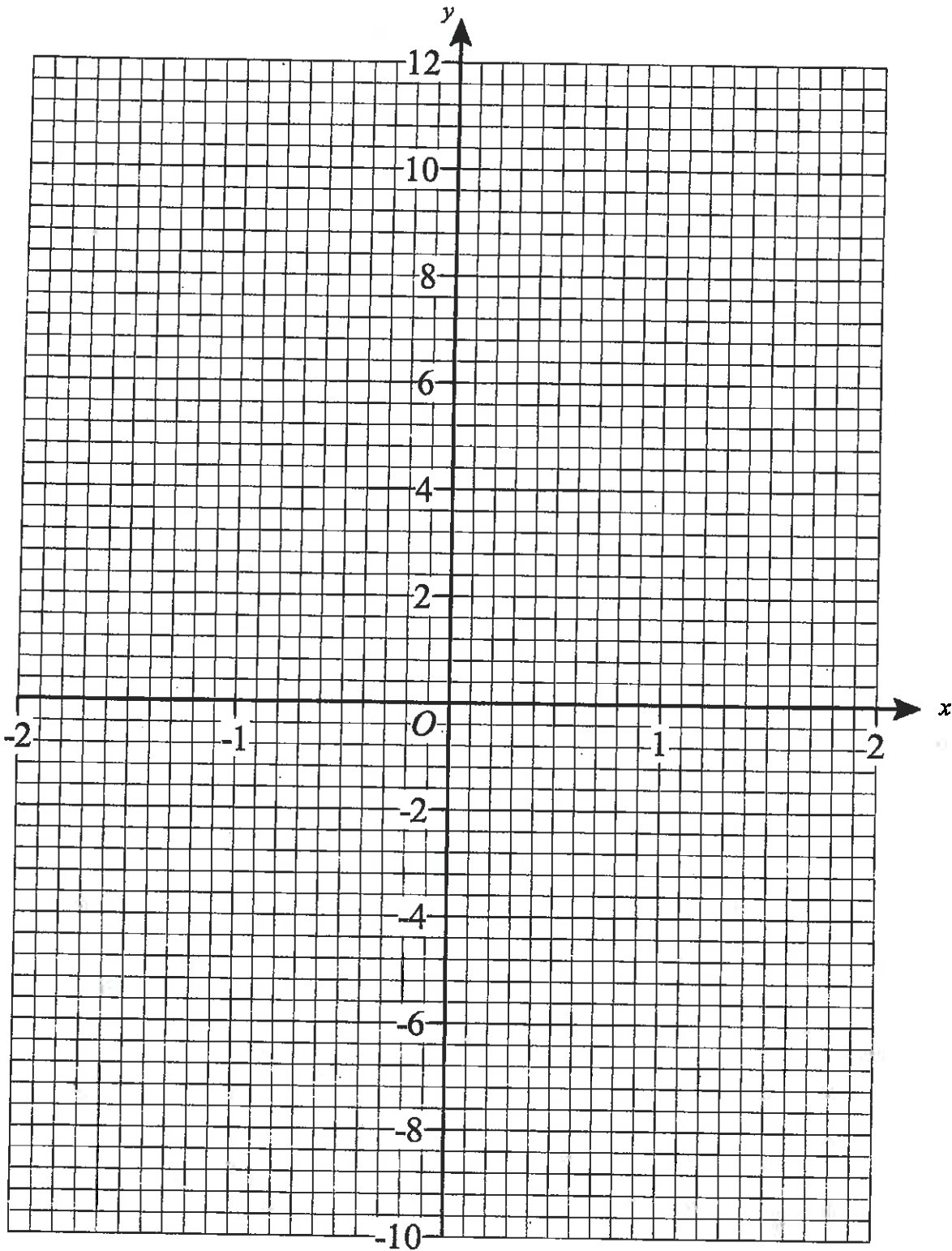
$x =$ _____ or $x =$ _____ 2

18) a) Complete the table of values for $y = x^3 + x + 1$

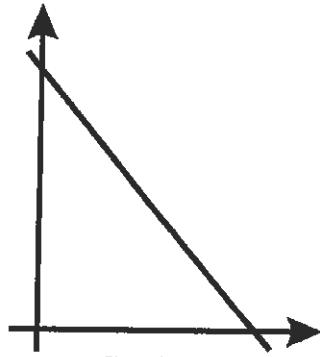
x	-2	-1	0	1	2
y	-9			3	

3

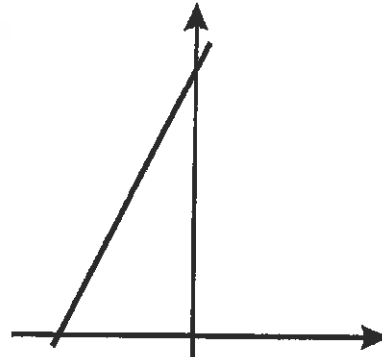
b) On the grid, draw the graph of $y = x^3 + x + 1$ 2



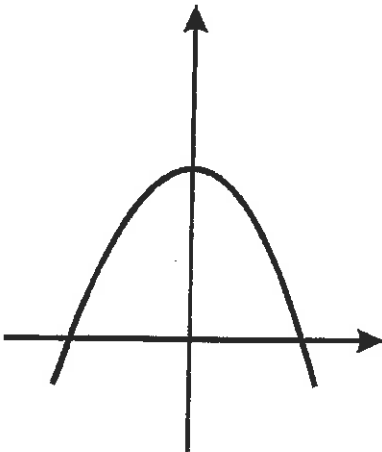
19)



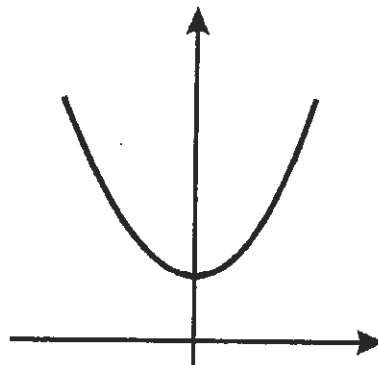
Graph A



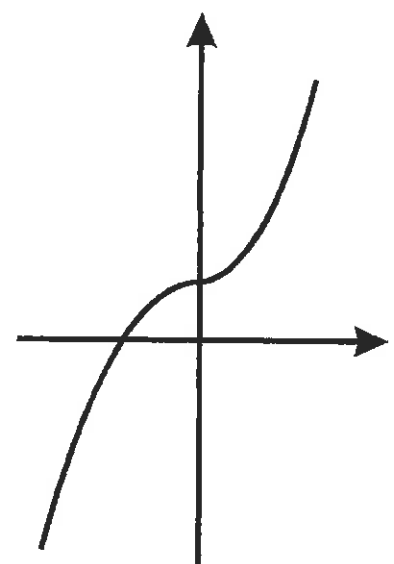
Graph B



Graph C



Graph D



Graph E

Complete the following statements

$y = 2x + 5$ matches graph _____

$y = x^3 + 2$ matches graph _____

$y + 2x = 5$ matches graph _____

$y = x^2 + 4$ matches graph _____

4