NAME

Time:

Non-Calculator Questions

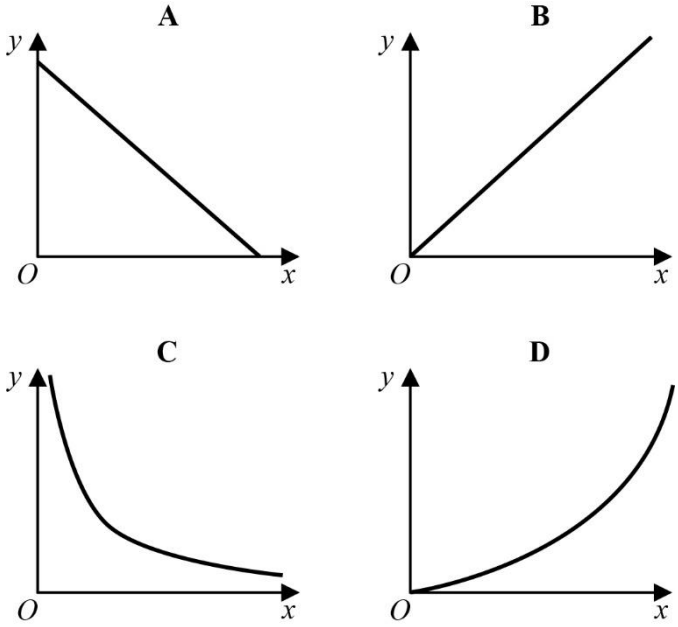
8th

1 Make x the subject of the formula $y = 2x + 5$

(2 marks)

9th

3 Here are four graphs, A, B, C and D.



One of the graphs shows that y is inversely proportional to x.

Write down the letter of this graph.

(1 mark)

9th

5 Make a the subject of each formula.

a $b = \sqrt{10 - 2a}$

(3 marks)

b $x = \dfrac{y - 3}{4a}$

(2 marks)

7 $3(x - k) = 2x + 6$, where k is an integer.

Show that x is always a multiple of 3.

(3 marks)

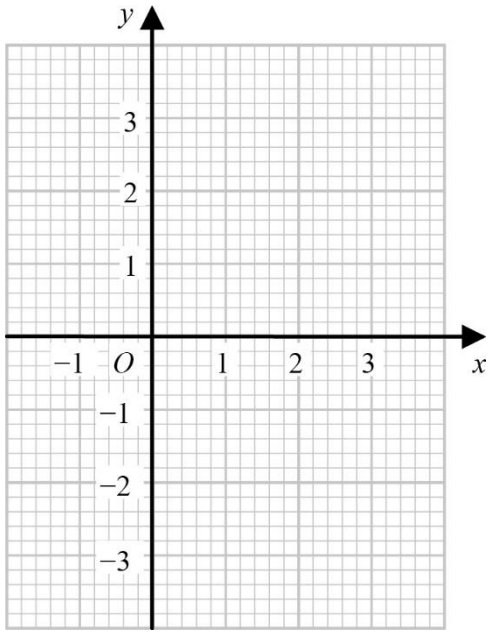
Calculator Questions

9 a Complete the table of values and draw the graph of $y = x^3 - 3x^2 + 2$ for $-1 \leqslant x \leqslant 3$

x	−1	0	1	2	3
y	−2				2

(2 marks)

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



(2 marks)

c Use the graph to find the solution to the equation $x^3 - 3x^2 + 2 = 0$ that lies between 2 and 3.

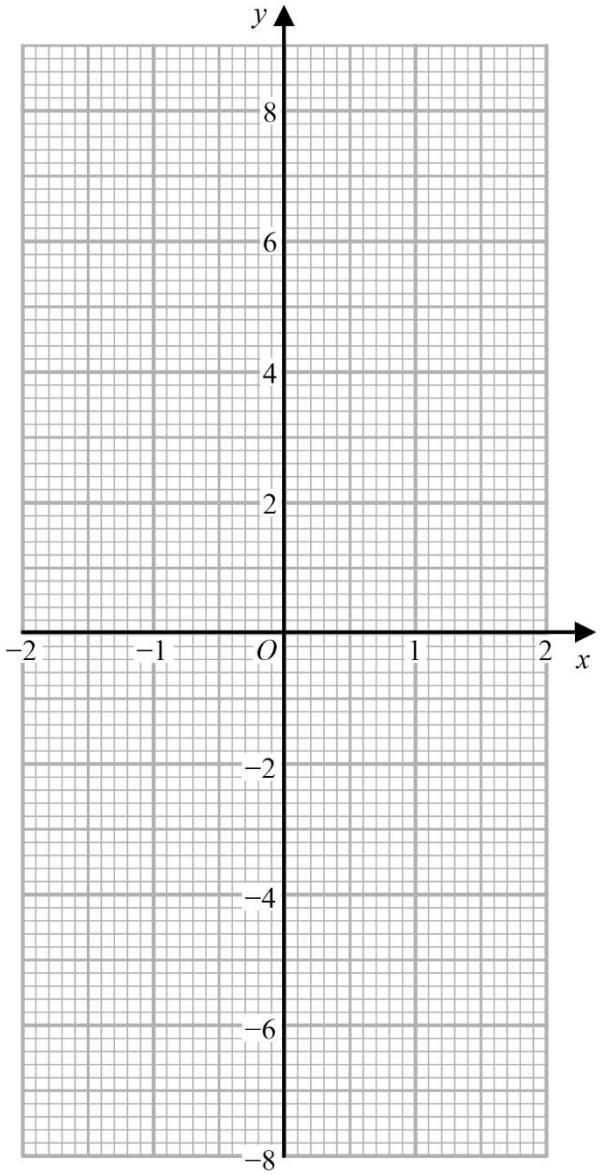
(1 mark)

11 **a** Complete the table of values for $y = x^3 + 1$ for $-2 \leqslant x \leqslant 2$

x	−2	−1	0	1	2
y	−7			2	

(2 marks)

b On the grid, draw the graph of $y = x^3 + 1$ for values of x from –2 to 2.

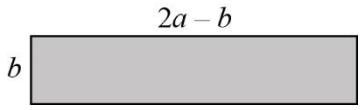


(2 marks)

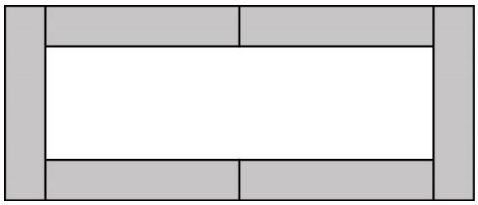
13 Make t the subject of the formula $y = \frac{t}{5} - 6x$

(2 marks)

15 This rectangular piece of card has a length of $(2a - b)$ cm and a width of b cm.



Six of these cards are stuck together to make a border.



The perimeter outside of the border is P cm.

a Show that $P = 12a - 2b$

(2 marks)

Samira says, 'When a and b are whole numbers P is always an even number.'

b Is Samira correct?

You must give a reason for your answer.

(2 marks)

Overall mark	**/26**