

Answer ALL TWENTY ONE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Factorise fully $4p + 6pq$

(2)

(b) Expand and simplify $(e + 3)(e - 5)$

(2)

(c) Solve $y = \frac{2y + 1}{5}$

Show clear algebraic working.

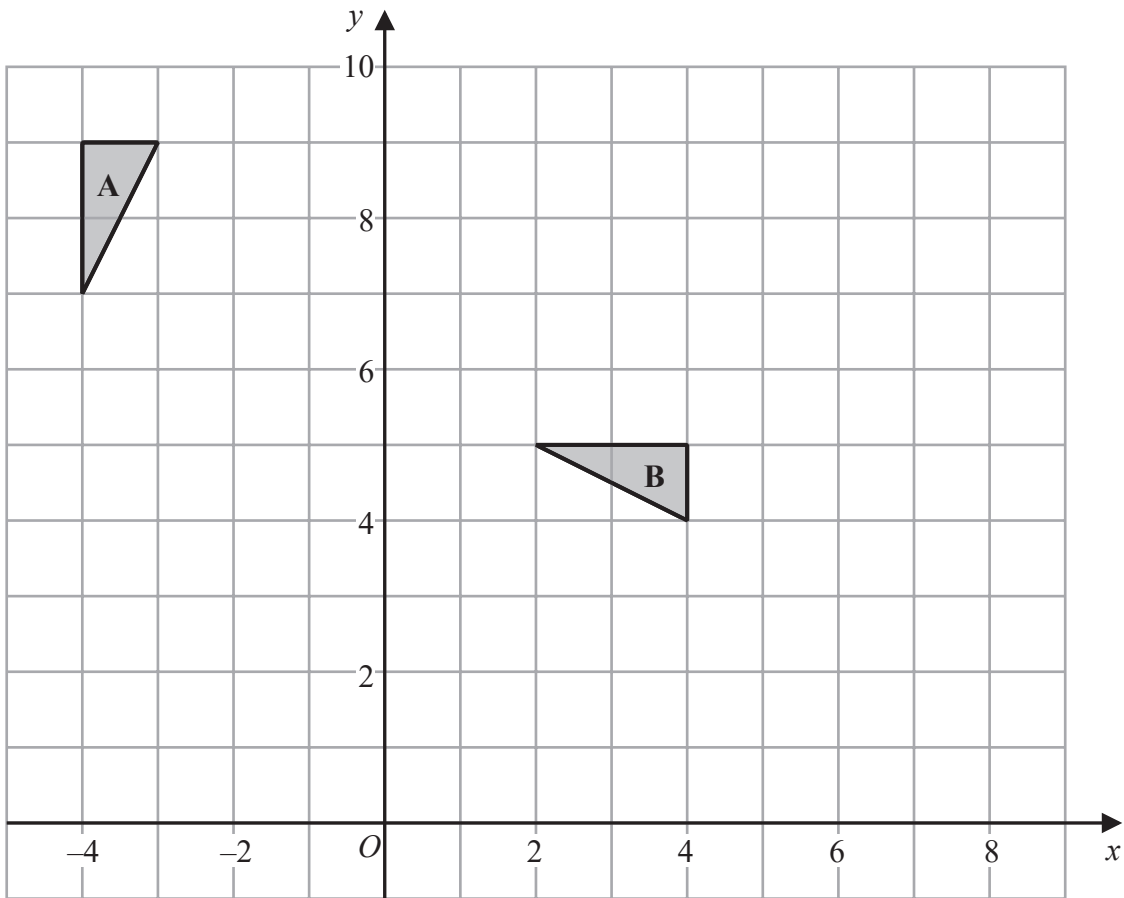
$y =$

(3)

(Total for Question 1 is 7 marks)



2



(a) Describe fully the single transformation that maps triangle A onto triangle B.

(3)

(b) On the grid, translate triangle A by the vector $\begin{pmatrix} 2 \\ -5 \end{pmatrix}$
Label the new triangle C.

(1)

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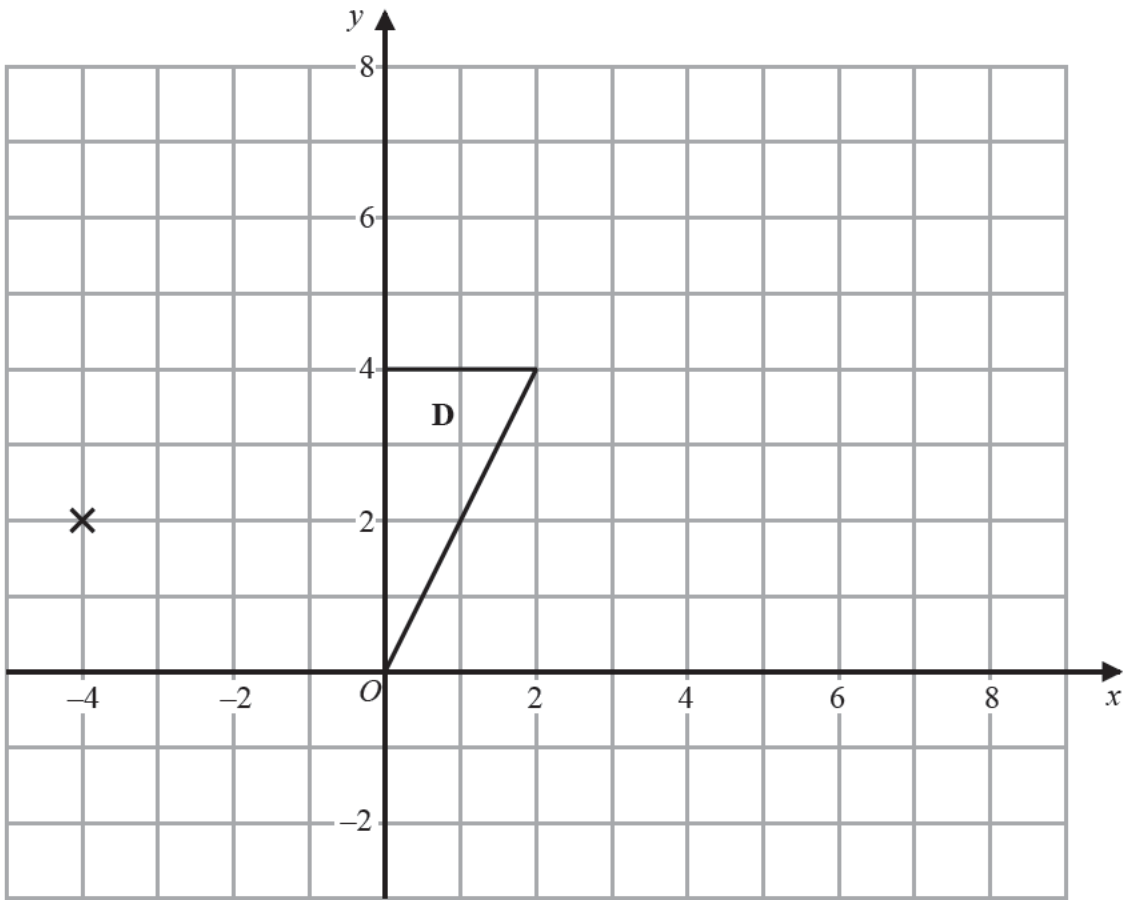
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(c) On the grid, enlarge triangle **D** with scale factor $\frac{1}{2}$ and centre $(-4, 2)$

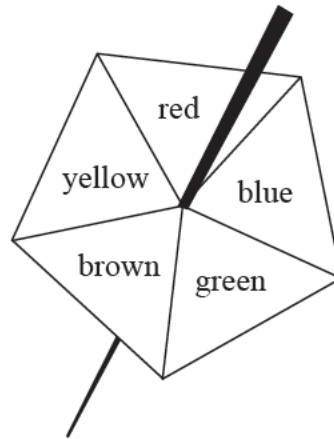
(2)

(Total for Question 2 is 6 marks)



P 5 9 0 1 7 A 0 5 2 8

3 Here is a biased 5-sided spinner.



When the spinner is spun, it can land on red, blue, green, brown or yellow.

The table gives the probabilities that the spinner lands on red or on blue or on green.

Colour	red	blue	green	brown	yellow
Probability	0.15	0.26	0.33		

When the spinner is spun once, the probability that the spinner lands on brown is 0.06 more than the probability that the spinner lands on yellow.

Jenine spins the spinner 150 times.

Work out an estimate for the number of times the spinner lands on yellow.

(Total for Question 3 is 4 marks)



4 The table gives information about the price of gold.

	1st February 2016	1st March 2016
Price of one ounce of gold (dollars)	1126.50	1236.50

- (a) Work out the percentage increase in the price of gold between 1st February 2016 and 1st March 2016
Give your answer correct to 3 significant figures.

(3) %

The price of one ounce of gold on 1st February 2016 was 1126.50 dollars.
The price of gold increased by 19% from 1st February 2016 to 1st July 2016

- (b) Work out the price of one ounce of gold on 1st July 2016
Give your answer correct to the nearest dollar.

(3) dollars

(Total for Question 4 is 6 marks)



5

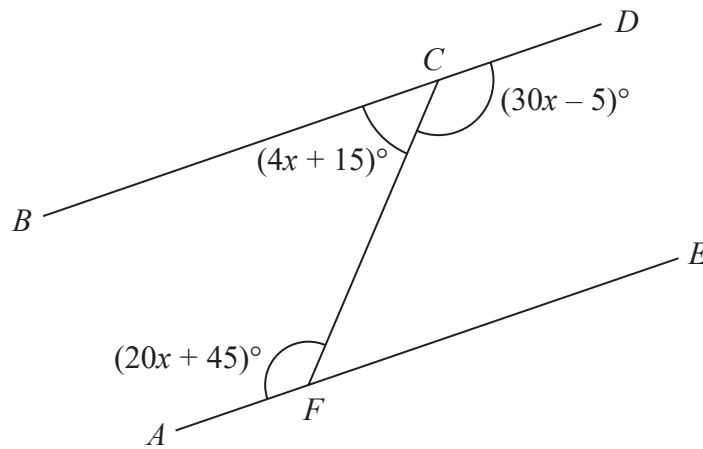


Diagram **NOT** accurately drawn

BCD and AFE are straight lines.

Show that BCD is parallel to AFE .

Give reasons for your working.

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(Total for Question 5 is 5 marks)

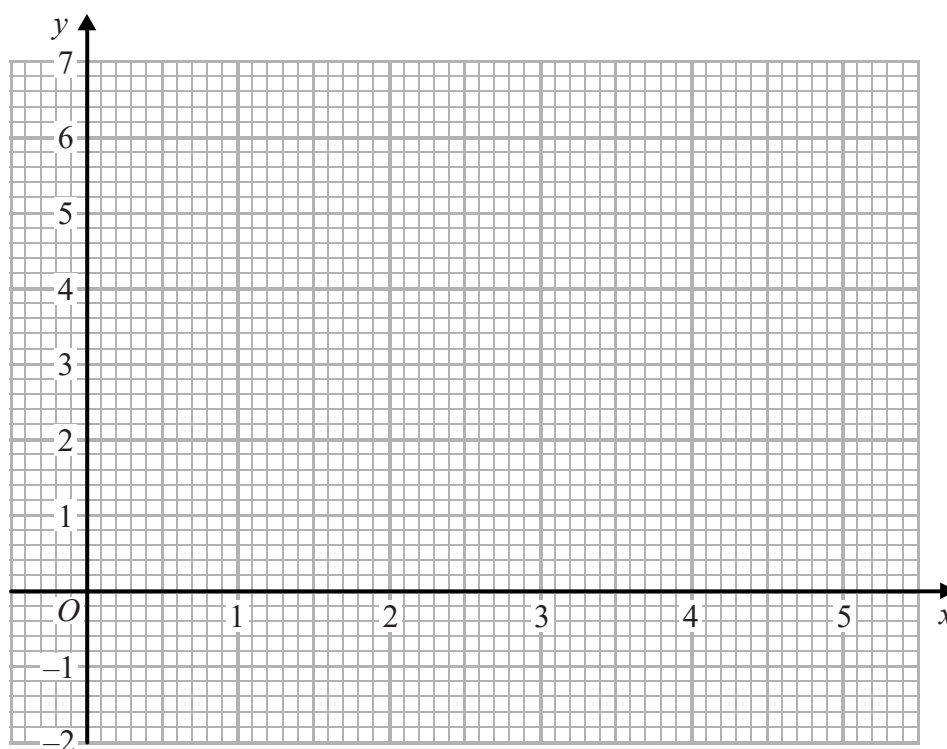


6 (a) Complete the table of values for $y = x^2 - 5x + 6$

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

(1)

(b) On the grid, draw the graph of $y = x^2 - 5x + 6$ for $0 \leq x \leq 5$



(2)

(c) By drawing a suitable straight line on the grid, find estimates for the solutions of the equation

$$x^2 - 5x = x - 7$$

(3)

(Total for Question 6 is 6 marks)



7 The table shows the volumes, in km^3 , of four oceans.

Ocean	Volume (km^3)
Arctic Ocean	1.88×10^7
Atlantic Ocean	3.10×10^8
Indian Ocean	2.64×10^8
Southern Ocean	7.18×10^7

(a) Write 7.18×10^7 as an ordinary number.

(1)

(b) Calculate the total volume of these four oceans.

(2)

km^3

The volume of the South China Sea is $9\,880\,000\text{ km}^3$

(c) Write $9\,880\,000$ in standard form.

(1)

(Total for Question 7 is 4 marks)

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