Edexcel November 2015 Paper 1 Feedback

Q3:

3 Here are the first four terms of an arithmetic sequence.

11 17 23 29

(a) Find, in terms of n, an expression for the nth term of this arithmetic sequence.

.....

(2)

(b) Is 121 a term of this arithmetic sequence?
You must explain your answer.

.....

.....

.....

(2)

(Total for Question 3 is 4 marks)

Q3.1 Here are the first four terms of an arithmetic sequence.

4 7 10 13

a) Find in terms of n, an expression for the nth term of this arithmetic sequence.

b) Is 100 a term of this arithmetic sequence? You must explain your answer.

Q3.2 Here are the first four terms of an arithmetic sequence.

$$9 \qquad 14 \qquad 19 \qquad 24$$

a) Find in terms of n, an expression for the nth term of this arithmetic sequence.

b) Is 123 a term of this arithmetic sequence? You must explain your answer.

Q5

5 Here are the ingredients needed to make **8** shortbread biscuits.

Shortbread biscuits makes **8** biscuits
120 g butter 60 g caster sugar 180 g flour

Tariq is going to make some shortbread biscuits.
He has the following ingredients

330 g butter 200 g caster sugar 450 g flour

Work out the greatest number of shortbread biscuits that Tariq can make with his ingredients.
You must show all your working.

Q5.1 Here are the ingredients needed to make 12 shortbread biscuits.

180g butter

90g sugar

270g flour

Jake is going to make some shortbread biscuits. He has the following ingredients:

380g butter 195g sugar 630g flour

Work out the greatest number of shortbread biscuits that Jake can make with his ingredients. You must show all your working.

Q6

***6**

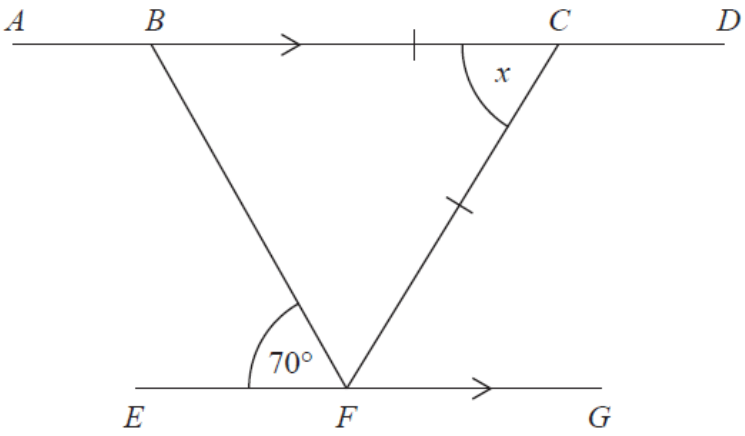
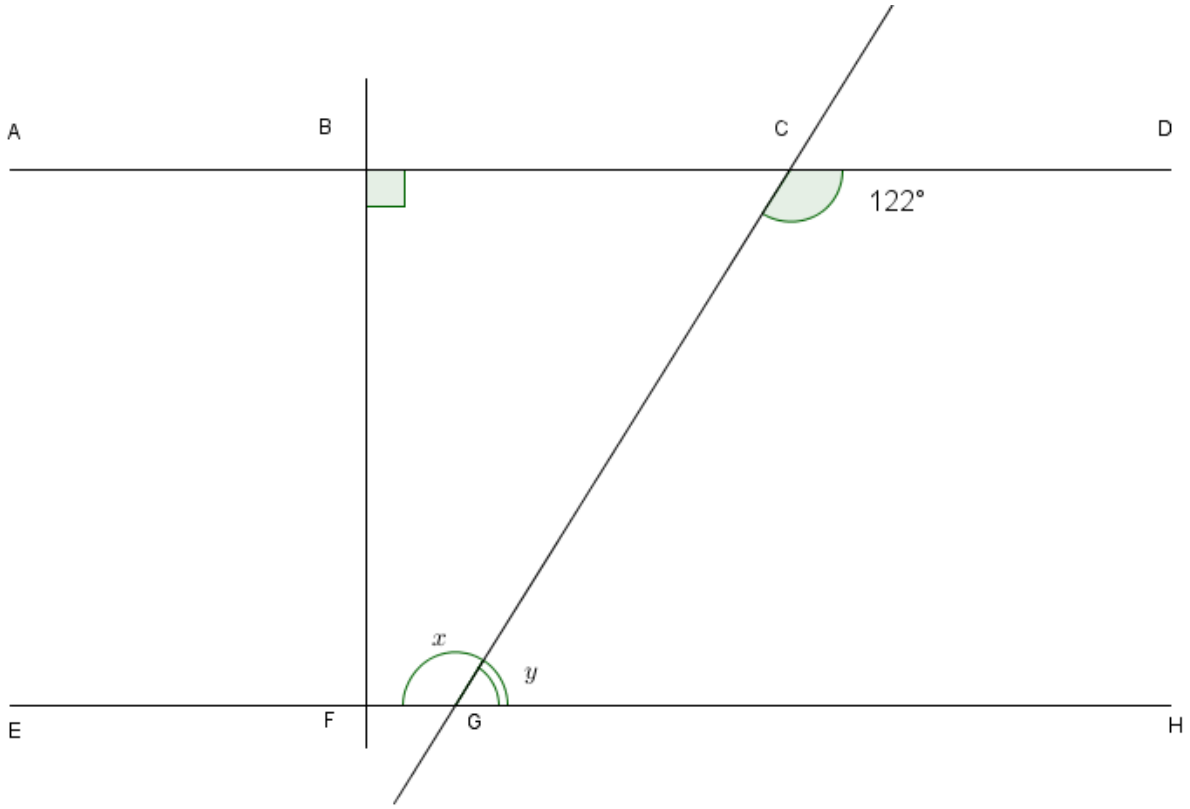


Diagram **NOT** accurately drawn

ABCD and *EFG* are parallel lines.
BC = *CF*
Angle *BFE* = 70°

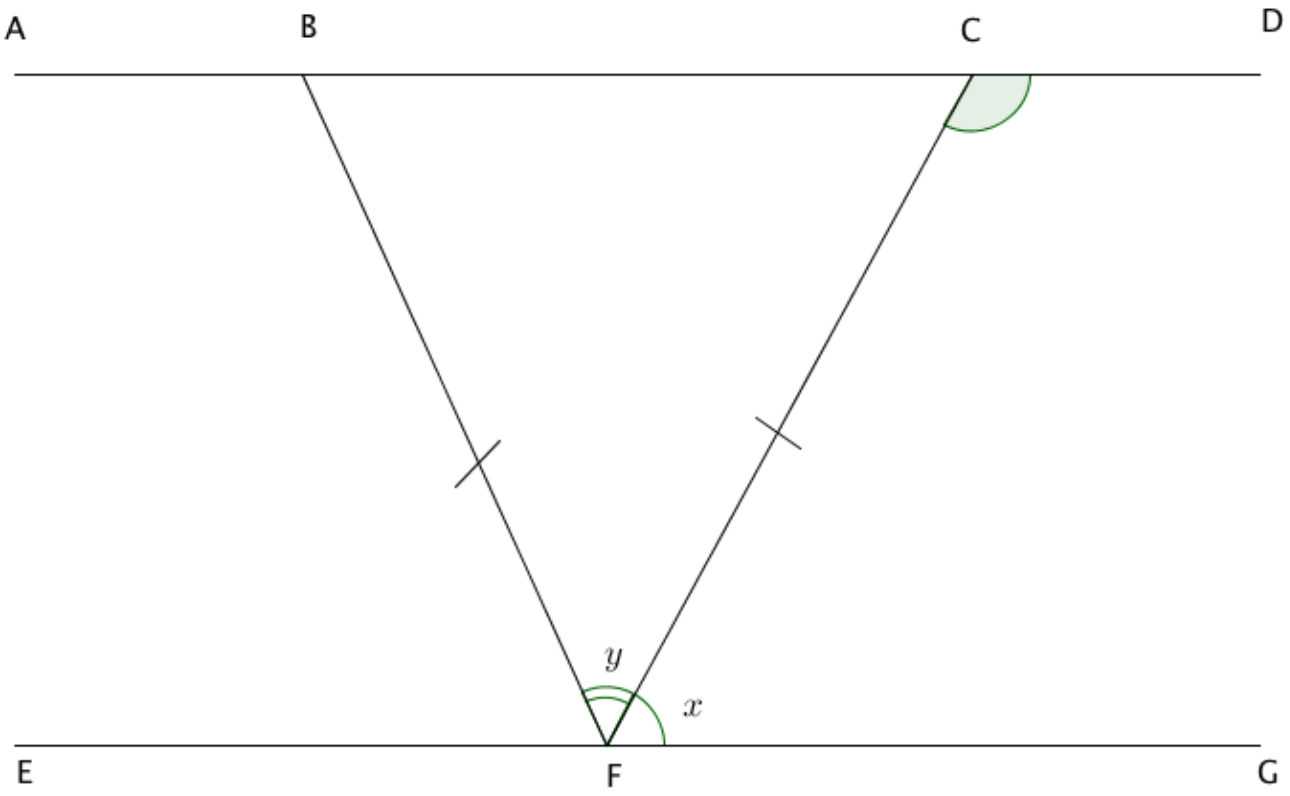
Work out the size of the angle marked *x*.
Give reasons for each stage of your working.

Q6.1



ABCD and EFGH are parallel lines. Angle DCG is $122°$. Work out the size of angles x and y. Give reasons for each stage of your working.

Q6.2



The lines $ABCD$ and EFG are parallel. Lines FB and FC have the same length. Find the values of the angles x and y, explaining each step in your reasoning.

Q8

8 Milk is sold in $\frac{1}{2}$ pint bottles, in 1 pint bottles and in 2 pint bottles.

One weekend a shop sold 100 bottles of milk.

46 of the bottles were sold on Sunday.
15 of the bottles sold on Sunday were 2 pint bottles.

31 of the bottles sold on Saturday were $\frac{1}{2}$ pint bottles.

22 of the bottles sold were 2 pint bottles.
30 of the bottles sold were 1 pint bottles.

How many 1 pint bottles were sold on Sunday?

Q8.1

A grocer sells eggs in boxes of 6, 12 or 18.

One weekend the shop sold 150 boxes.

70 of the boxes were sold on Saturday.

35 of the boxes sold on Saturday were 12 egg boxes.

48 of the boxes sold on Sunday were 6 egg boxes.

60 of the boxes sold were 6 egg boxes.

30 of the boxes sold were 18 egg boxes.

How many 12 egg boxes were sold on Sunday.

Q10

10 (a) Expand $x(x + 2)$

(1)

(b) Expand and simplify $3(y + 2) + 4(x - 1)$

(2)

(c) Expand and simplify $(2t - 3)(t + 5)$

(2)

(d) Factorise fully $8a^2 + 12a$

(2)

(e) Factorise $y^2 - y - 2$

(2)

Q10.1

a) Expand $y(y + 3)$

b) Expand and simplify $4(x + 1) + 6(x - 2)$

c) Expand and simplify $(t - 4)(t + 6)$

d) Factorise fully $15a^3 + 10a$

e) Factorise $x^2 + 5x + 6$

Q10.2

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

b) Expand and simplify $4(x + 3) - 2(x - 2)$

c) Expand and simplify $(2t - 4)(t + 6)$

d) Factorise fully $14a^3 + 21a^2$

e) Factorise $m^2 - m - 6$

Q11

11 Manchester airport is on a bearing of 330° from a London airport.

(a) Find the bearing of the London airport from Manchester airport.

.....

(2)

The London airport is 200 miles from Manchester airport.

A plane leaves Manchester airport at 10 am to fly to the London airport.
The plane flies at an average speed of 120 mph.

(b) What time does the plane arrive at the London airport?

.....

(4)

(Total for Question 11 is 6 marks)

Q11.1

a) London is on a bearing of $160°$ from Nottingham. Find the bearing of Nottingham from London.

b) London is 130 miles from Nottingham. Zoe drives at an average speed of 50mph. If she sets off from Nottingham at 11:00, what time does she arrive in London?

Q12

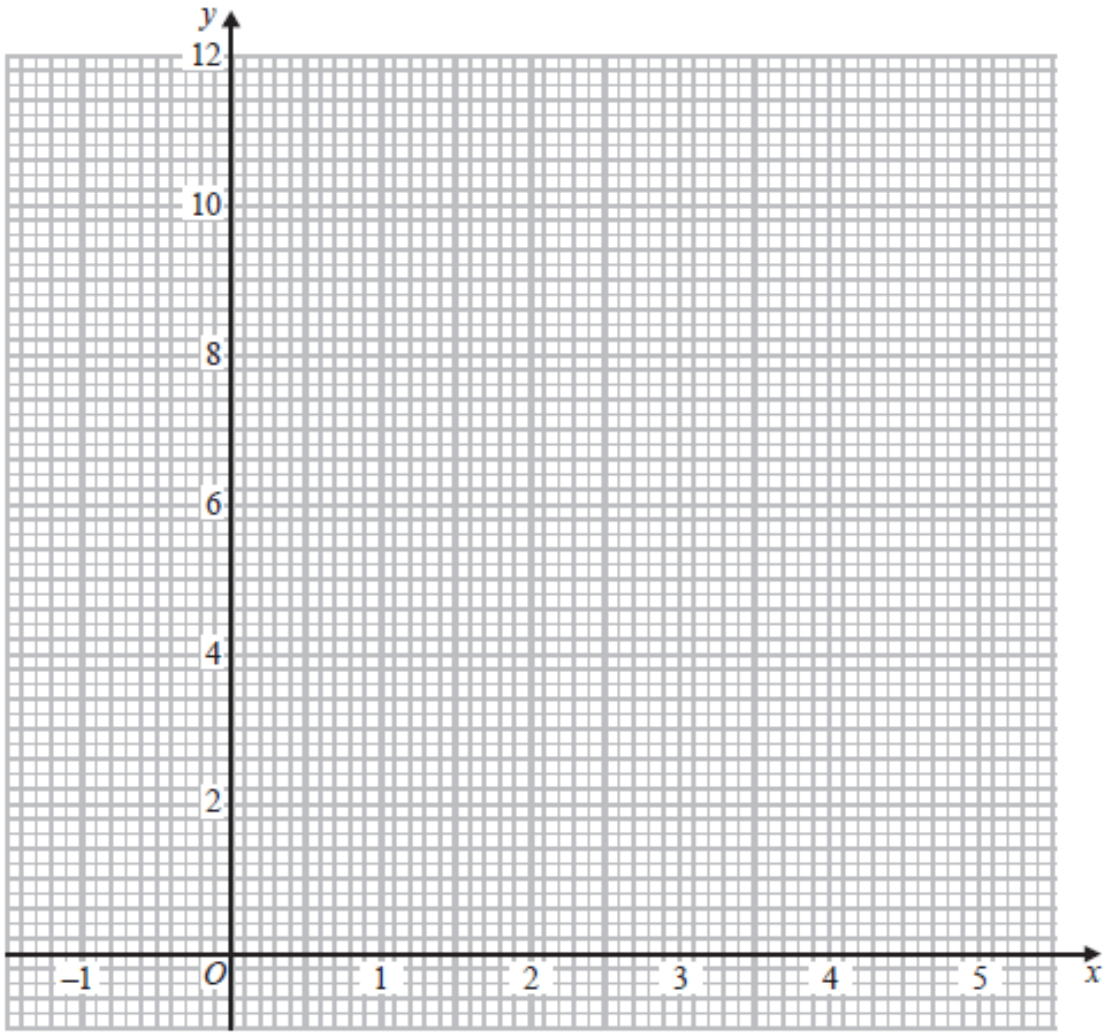
12 (a) Complete the table of values for $y = x^2 - 3x + 2$

x	−1	0	1	2	3	4	5
y	6				2		12

(2)

(b) On the grid, draw the graph of $y = x^2 - 3x + 2$ for values of x from −1 to 5

(2)



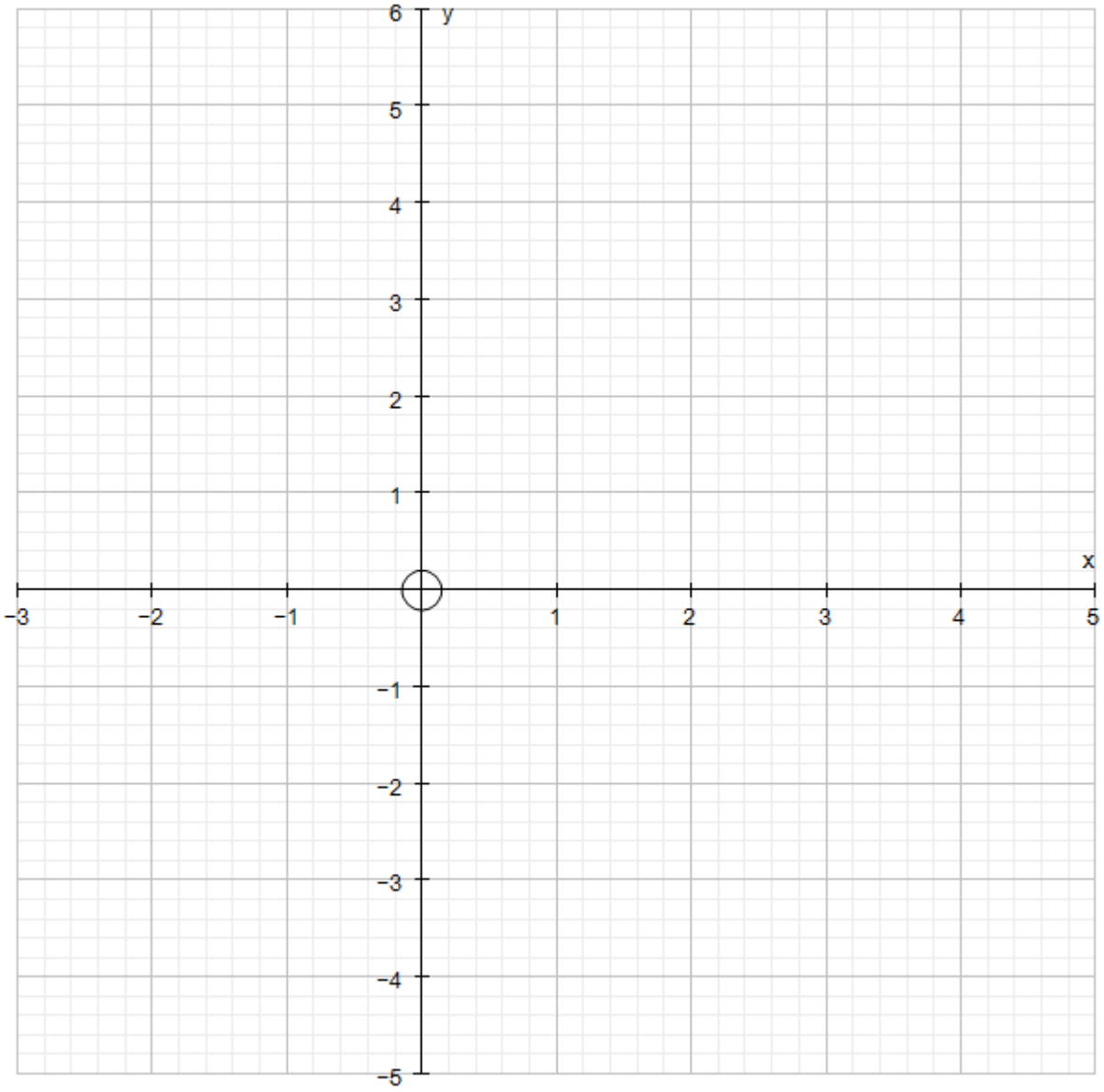
(c) Find estimates for the solutions of the equation $x^2 - 3x + 2 = 4$

Q12.1

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

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

b) On the grid below, draw the graph of $y = x^2 - 2x - 3$ for values of x from -2 to 4



c) Find estimates for the solutions of the equation $x^2 - 2x - 3 = 3$

Q13

13 There are 18 packets of sweets and 12 boxes of sweets in a carton.

The mean number of sweets in all the 30 packets and boxes is 14
The mean number of sweets in the 18 packets is 10

Work out the mean number of sweets in the boxes.

(Total for Question 13 is 3 marks)

Q13.1

There are 16 packets and 8 boxes of sweets in a carton.
The mean number of sweets in all the 24 packets and boxes is 16.
The mean number of sweets in the 16 packets is 14.
Work out the mean number of sweets in the boxes.