



Name: .....

Video Solutions:



## MATHS FOR GRANTED EASTER GCSE MOCK EXAMINATIONS 2023

### PAPER 3 (Calculator) Foundation Tier Time: 1 hour 30 minutes

**You must have:** Ruler, protractor, pair of compasses, pen, HB pencil, eraser

#### Instructions

Use **black** ink or ball-point pen.

**Fill in your name** at the top of this page.

Answer **all** questions.

Answer the questions in the spaces provided.

**Calculators MAY be used.**

Diagrams are **NOT** accurately drawn, unless otherwise indicated.

You must **show all your working out.**

#### Information

The total mark for this paper is 80.

The marks for **each** question are shown in brackets.

#### Advice

Read each question carefully and try to answer every question.

Keep an eye on the time and check your answers, if you have time, at the end.

**Q1.**

(a) Write down all the factors of 22.

.....  
(2)

(b) Write down a square number between 20 and 30.

.....  
(1)

(c) Calculate the square root of 38. Write down all the figures on your calculator display.

.....  
(1)

(d) Jo says that 8 is a multiple of 16. Explain why Jo is wrong.

(1)

**(Total for question = 5 marks)**

**Q2.**

(a) Work out  $\frac{3}{7}$  of 56

.....  
(2)

(b) Fill in the missing numbers to make these fractions equivalent.

$$\frac{2}{5} = \frac{\square}{15} = \frac{14}{\square}$$

(2)

(c) Abdul says that 3 times a prime number is always an odd number.

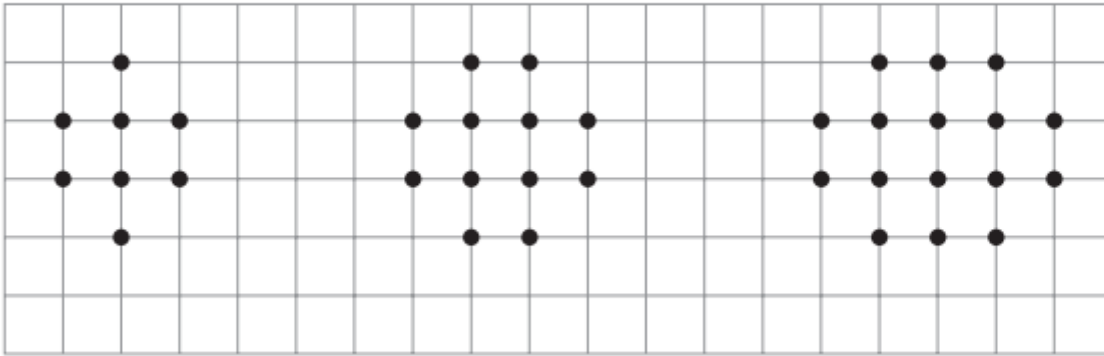
Give an example to show that he is wrong.

(2)

**(Total for question = 6 marks)**

**Q3.**

Here are some patterns made with dots.

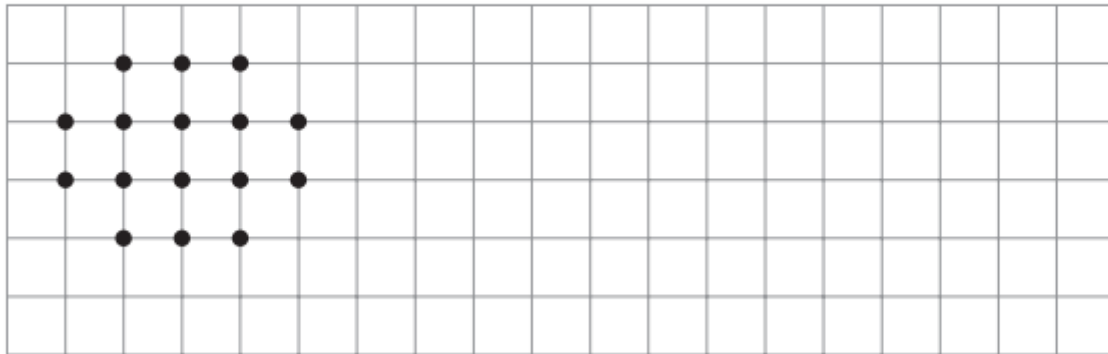


Pattern number 1

Pattern number 2

Pattern number 3

(a) In the space below, complete Pattern number 4



Pattern number 4

(1)

(b) Complete the table.

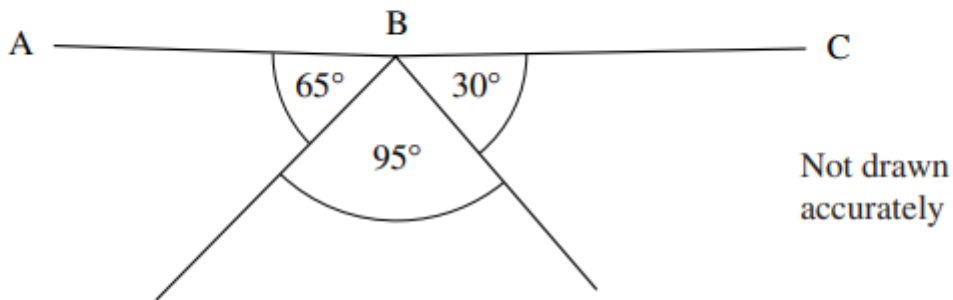
Pattern number	1	2	3	4	5
Number of dots	8	12	16		

(2)

**(Total for question = 3 marks)**

Q4.

The diagram shows three angles.



Suki says that  $ABC$  is a straight line.

Explain whether she is correct.

(Total for question = 2 marks)

Q5. The  $n$ th term of a sequence is given by the expression

$$n^2 + 5$$

Write down the first **three** terms of the sequence.

....., ....., .....

(Total for question = 2 marks)

**Q6.**

You can use this rule to work out the total charge for hiring a cement mixer.

$\text{Total charge} = \text{£}30 \text{ plus } \text{£}7 \text{ for each hour of hire}$
--

On Monday, Sally hired a cement mixer for 4 hours.

(a) Work out Sally's total charge.

£.....  
(2)

On Tuesday, Tom hired a cement mixer.  
Tom's total charge was £51

(b) Work out for how many hours Tom hired the cement mixer.

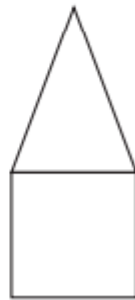
.....hours  
(3)

**(Total for question = 5 marks)**

**Q7.**

Here are the front elevation, side elevation and the plan of a 3-D shape.

Front elevation



Side elevation



Plan



In the space below, draw a sketch of the 3-D shape.

**(Total for question = 2 marks)**

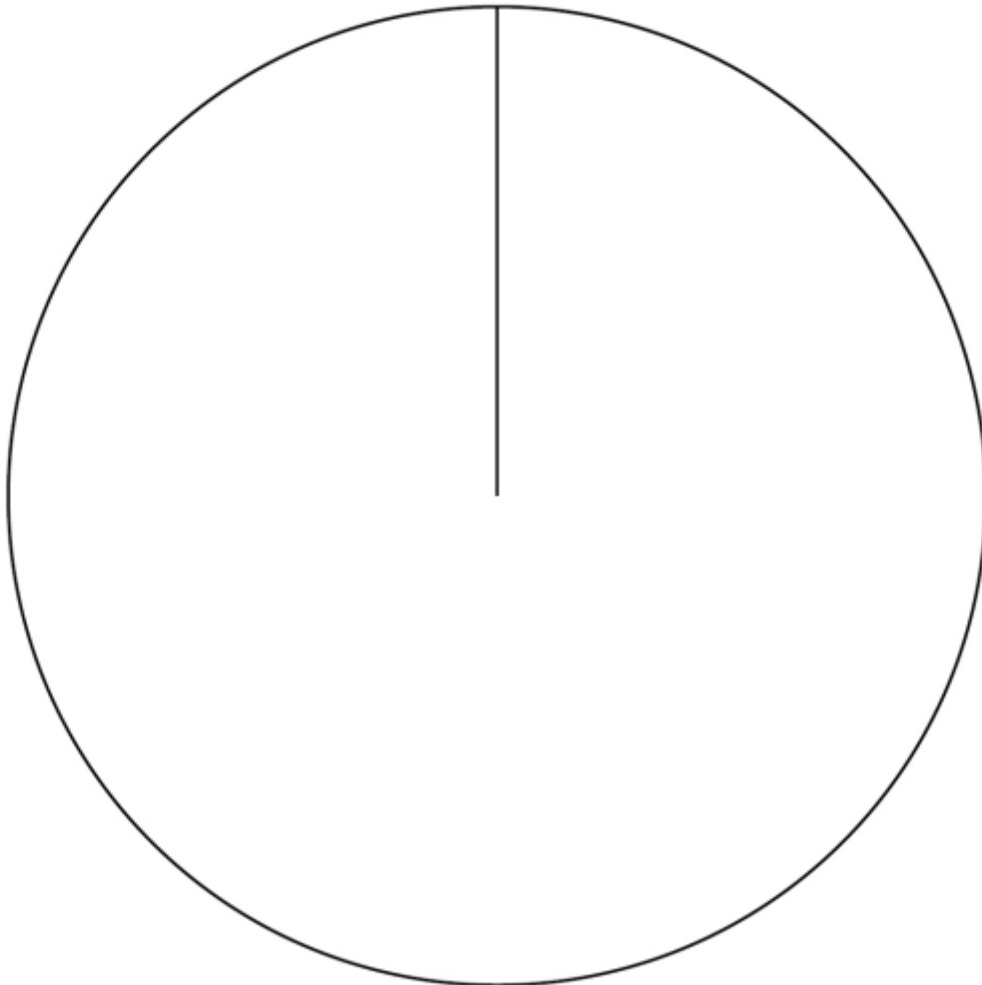
**Q8.**

In one hour the shop sells 180 scoops of ice cream.

The number of scoops of each flavour is shown in the table.

<b>Flavour</b>	Vanilla	Strawberry	Chocolate	Mint
<b>Number of scoops</b>	45	75	50	10

Complete the pie chart to represent the data.



**(Total for question = 4 marks)**

**Q9.** Here are the first four terms of an arithmetic sequence.

5      8      11      14

Find an expression, in terms of  $n$ , for the  $n$ th term of the sequence.

.....  
**(Total for question = 2 marks)**

**Q10.** The size of a detergent bottle is increased from 500ml to 665 ml.

What is the percentage increase?

.....%

**(Total for question = 3 marks)**

**Q11.**

(a) Expand  $6(x - 7)$

.....  
(1)

(b) Expand and simplify

$$x(2x + 3) - 4(x^2 - 1)$$

.....  
(2)

**(Total for question = 3 marks)**



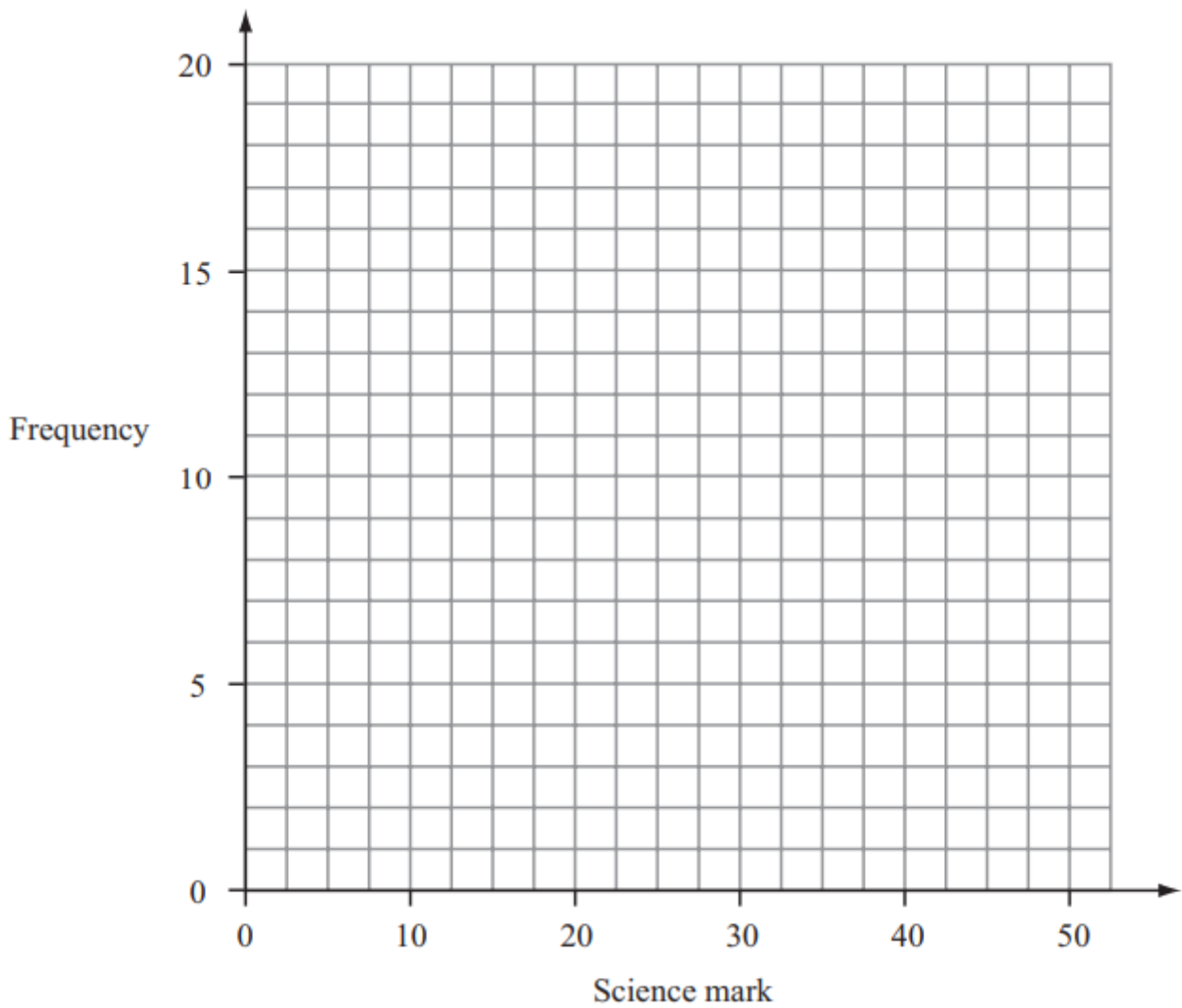
**Q12.**

60 students take a science test.  
The test is marked out of 50.

This table shows information about the students' marks.

Science mark	0–10	11–20	21–30	31–40	41–50
Frequency	4	13	17	19	7

On the grid, draw a frequency polygon to show this information.



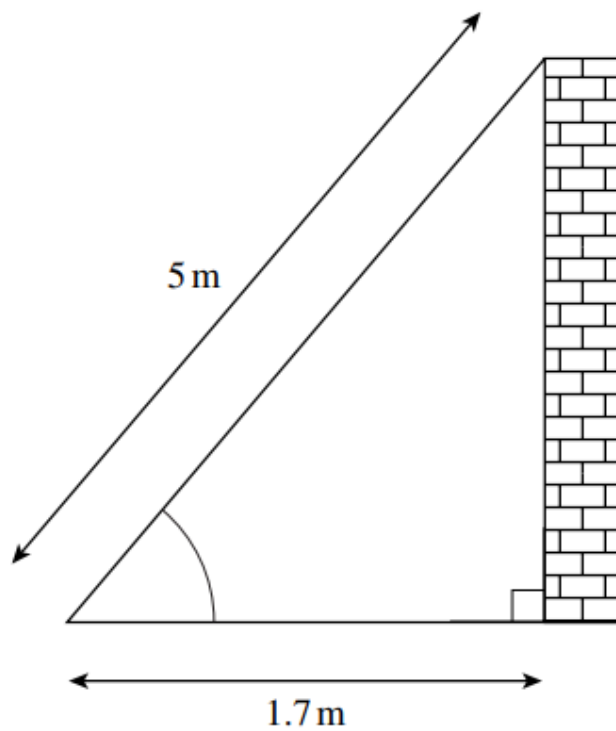
**(Total for question = 2 marks)**

**Q13.** Express 252 as a product of its prime factors.

.....  
(Total for question = 3 marks)

**Q14.**

A ladder of length 5 m rests against a wall.  
The foot of the ladder is 1.7 m from the base of the wall.



Not drawn accurately

How far up the wall does the ladder reach?

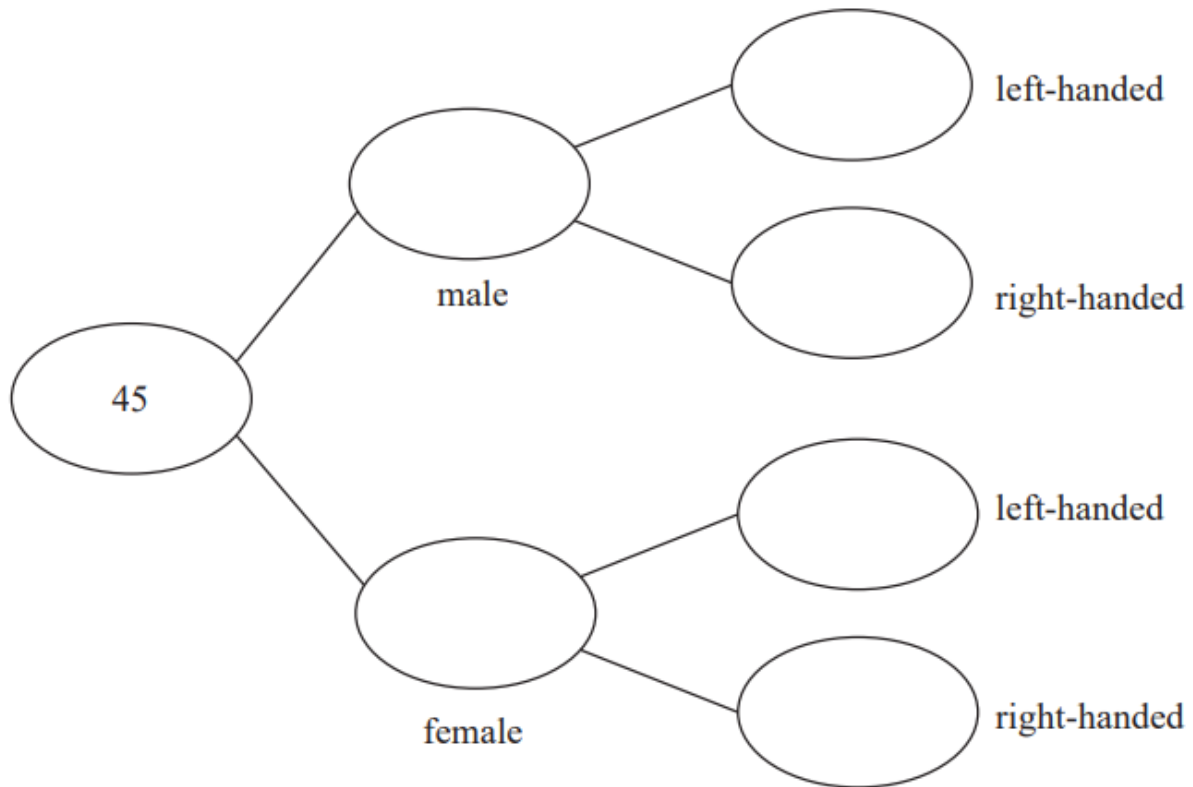
.....m  
(Total for question = 3 marks)

**Q15.** Each worker in a factory is either left-handed or right-handed.

22 of the 45 workers are male.

16 of the 34 right-handed workers are female.

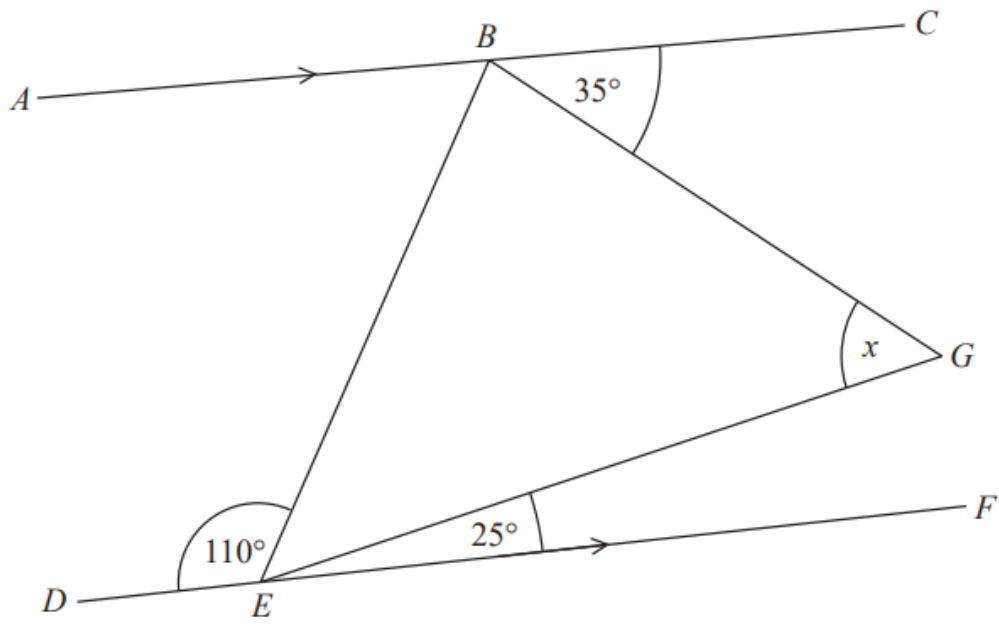
Complete the frequency tree for this information.



**(Total for question = 3 marks)**

**Q16.**

*BEG* is a triangle.



*ABC* and *DEF* are parallel lines.

Work out the size of angle  $x$ .

Give a reason for each stage of your working.

.....<sup>o</sup>  
(Total for question = 4marks)

**Q17.** A box contains only red, blue and green pens.

The ratio of red pens to blue pens is 5 : 9.

The ratio of blue pens to green pens is 1 : 4.

Calculate the percentage of pens that are blue.

.....  
(Total for question = 3 marks)

**Q18.**

Investment A      Save £150 per month for 2 years.  
                            2.5% interest is added to the total amount saved.

Investment B      Invest £3500  
                            Compound interest is added at 3% per year.

After 2 years, how much **more** is investment B worth than investment A?

.....  
(Total for question = 4 marks)

**Q19.**

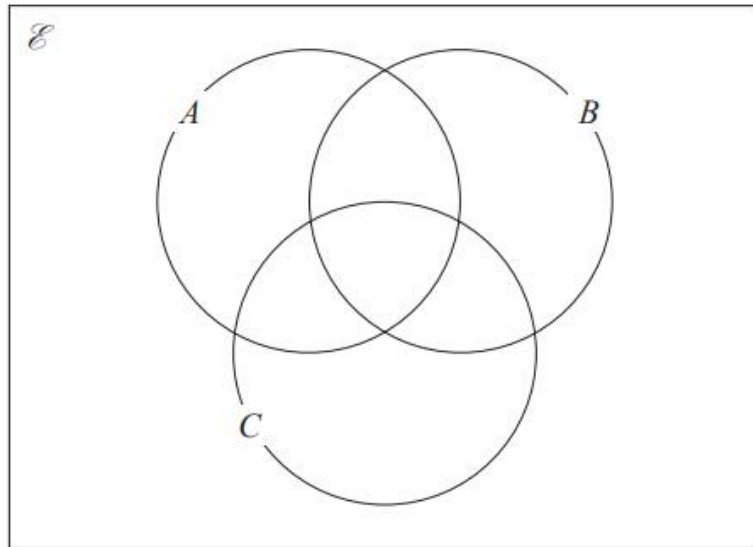
$\mathcal{E} = \{\text{even numbers between 1 and 25}\}$

$A = \{2, 8, 10, 14\}$

$B = \{6, 8, 20\}$

$C = \{8, 18, 20, 22\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from  $\mathcal{E}$ .

(b) Find the probability that the number is a member of  $A \cap B$ .

.....  
(2)  
(Total for question = 5 marks)

**Q20.**

Jenny works in a shop that sells belts.

The table shows information about the waist sizes of 50 customers who bought belts from the shop in May.

<b>Belt size</b>	<b>Waist (<math>w</math> inches)</b>	<b>Frequency</b>
Small	$28 < w \leq 32$	24
Medium	$32 < w \leq 36$	12
Large	$36 < w \leq 40$	8
Extra Large	$40 < w \leq 44$	6

Calculate an estimate for the mean waist size.

.....inches

**(Total for question = 3 marks)**

**Q21.**

(a) Expand and simplify  $(5x + 2)(2x - 3)$

.....  
(2)

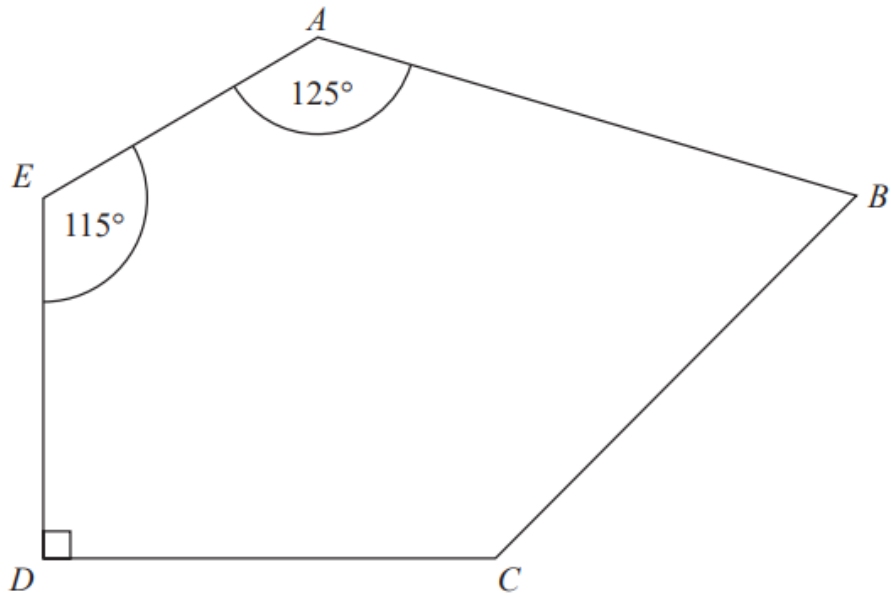
(b) Factorise  $x^2 + 4x + 3$

.....  
(2)

**(Total for question = 4 marks)**

**Q22.**

*ABCDE* is a pentagon.



Angle  $BCD = 2 \times$  angle  $ABC$

Work out the size of angle  $BCD$ .  
You must show all your working.

.....<sup>o</sup>

**(Total for question = 4 marks)**



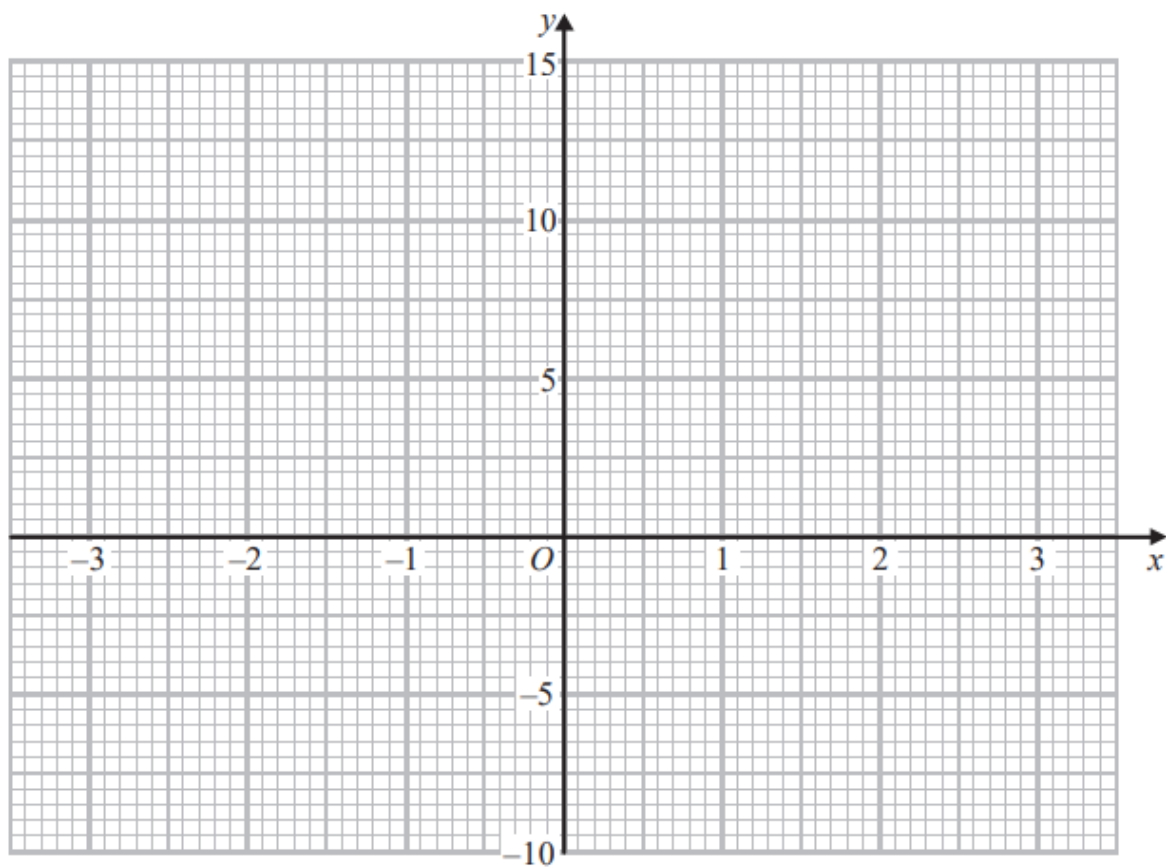
Q23.

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

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

(2)

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



(2)

(c) Use the graph to estimate a solution to  $x^2 + x - 4 = 0$

(1)  
(Total for question = 5 marks)

**TOTAL FOR PAPER IS 80 MARKS**