

Paper 2 Predictions

**AQA - Higher**

**Very High Chance**



Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You will need a calculator

### Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this test

[www.corbettmaths.com/contents](http://www.corbettmaths.com/contents)



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2	Angles in Parallel Lines	25
3	Speed, Distance, Time	299
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10	Trigonometry	329, 330, 331
11	Similar Shapes	292, 293a, 293b
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17	Constructions	78, 72
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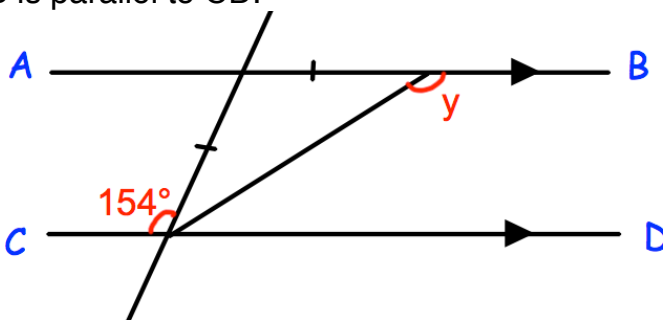
Question	Topic	Video number
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33	Histograms	157, 158, 159
34	Transformations of Graphs	323
35	Algebraic Fractions	21, 22, 23, 24

1. A coat in London costs £60.  
 The same coat in Dublin costs €105.60.  
 The exchange rate is £1 = €1.65.

In which city is the coat cheaper and by how much?

(3)

2. AB is parallel to CD.



Work out the size of angle  $y$ .  
 Give reasons for your answer.

.....°  
 (4)

3. A car travels 240 kilometres in hours 20 minutes.

Calculate the average speed, in km/h, of the car.

.....km/h  
(3)

4. At a rugby match, the ratio of children to adults is 2 : 3  
There are 6000 children in the crowd.  
Each adult ticket costs £8  
Each child ticket costs a quarter of the adult ticket.

Work out the total money made from ticket sales.

£.....  
(4)

5. The first 5 terms in a number sequence are

10    7    4    1    -2    ...    ...

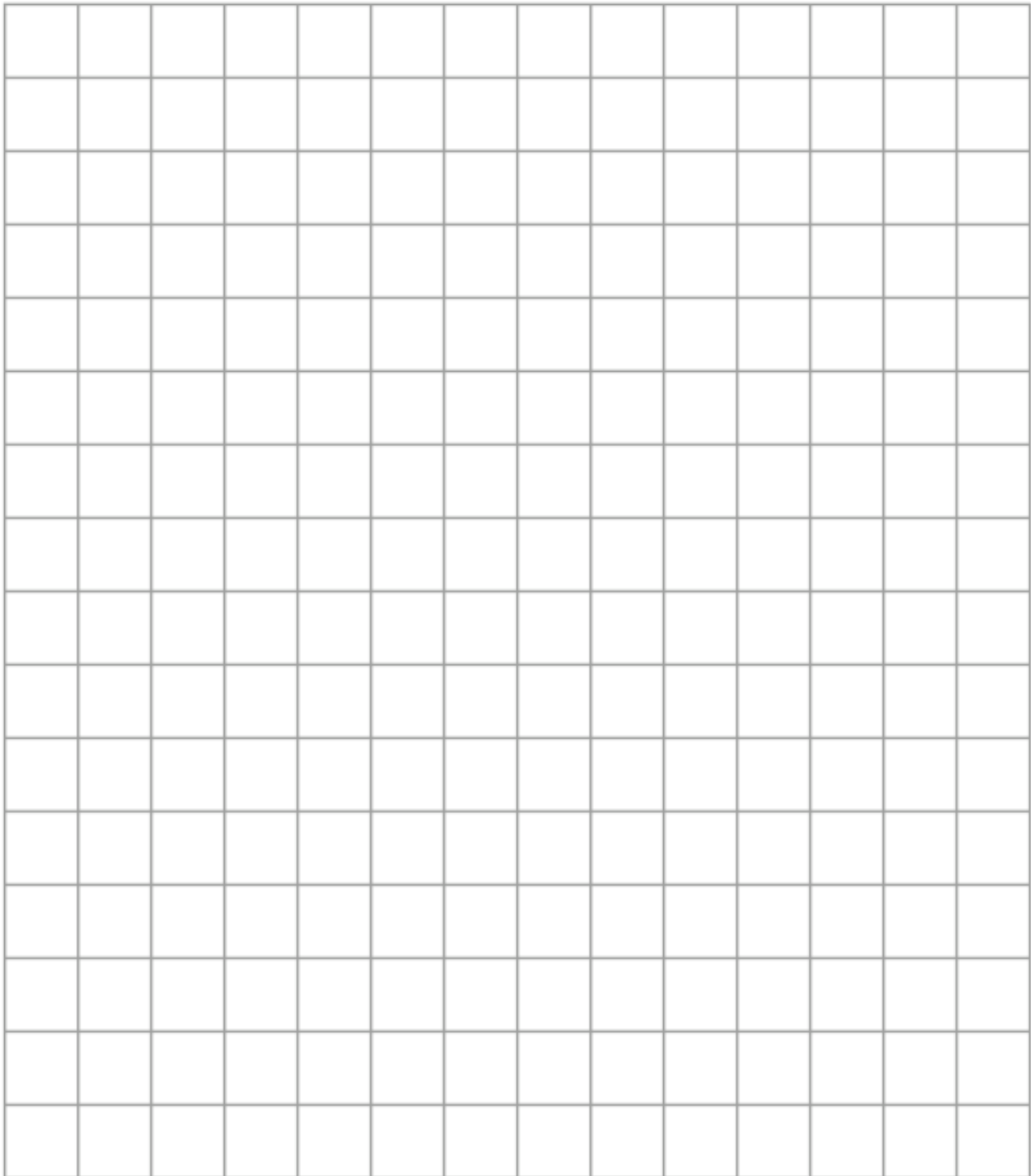
(a) Work out the  $n$ th term of the sequence.

.....  
(2)

(b) Find the 50<sup>th</sup> term of the sequence.

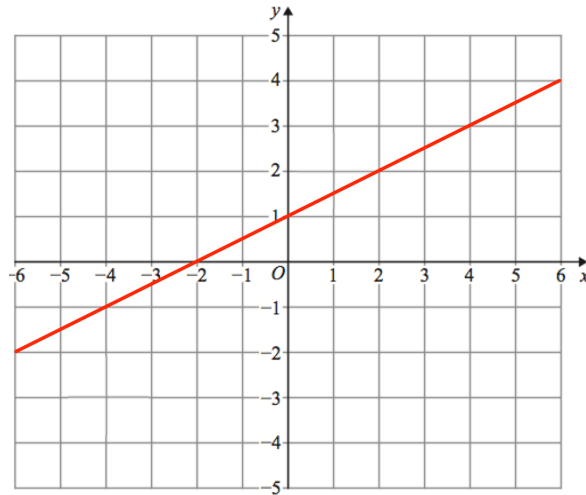
.....  
(2)

6. On the grid, draw  $y = 4x - 5$  for values of  $x$  from  $-2$  to  $2$ .



**(4)**

7. A straight line L is shown on the grid.



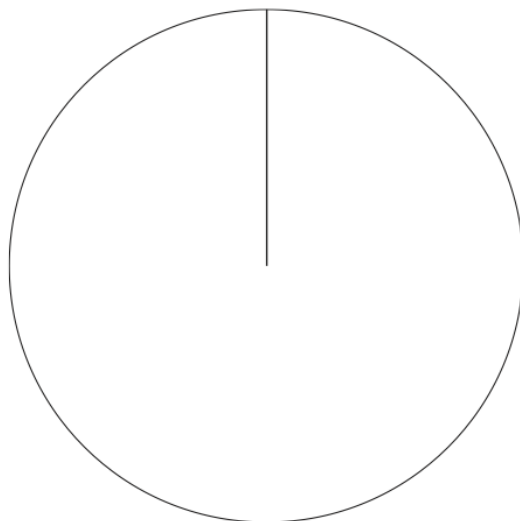
Work out the equation of line L

.....  
**(3)**

8. The table gives information about the holiday destination of 18 students in a class.

Country	Frequency	
France	3	
Wales	4	
England	11	

Draw an accurate pie chart to show this information.



**(4)**

9. Helen plays darts.

Here are her scores.

55   23   48   29   41   47   36  
35   40   35   44   34   35

(a) Draw an ordered stem and leaf diagram to show her scores.

**(3)**

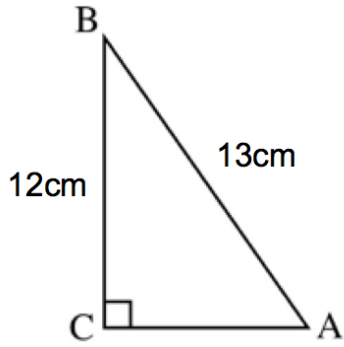
(b) Write down the mode.

.....  
**(1)**

(c) Work out the range.

.....  
**(1)**

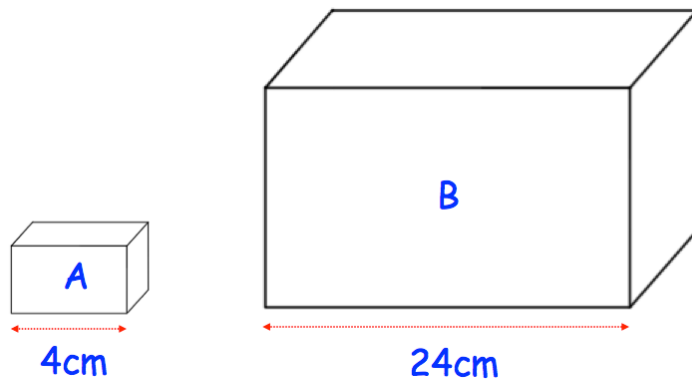
10.



Calculate the size of angle BAC.

.....<sup>o</sup>  
(3)

11. Shown below are two mathematically similar cuboids.



The volume of cuboid B is 1728cm<sup>3</sup>

Find the volume of cuboid A.

.....cm<sup>3</sup>  
(2)



12. Fiona leaves £1600 in the bank for four years.  
It earns compound interest of 4% each year.

Calculate the total amount Fiona has in the bank at the end of the four years.

£.....  
**(3)**

13. Lauren is given a 12% pay rise.  
Her new salary is £24,080

What was Lauren's salary before the pay rise?

£.....  
**(3)**

14. Solve the simultaneous equations

$$\begin{aligned} 3x + 5y &= 1 \\ 2x - 3y &= 7 \end{aligned}$$

Do not use trial and improvement

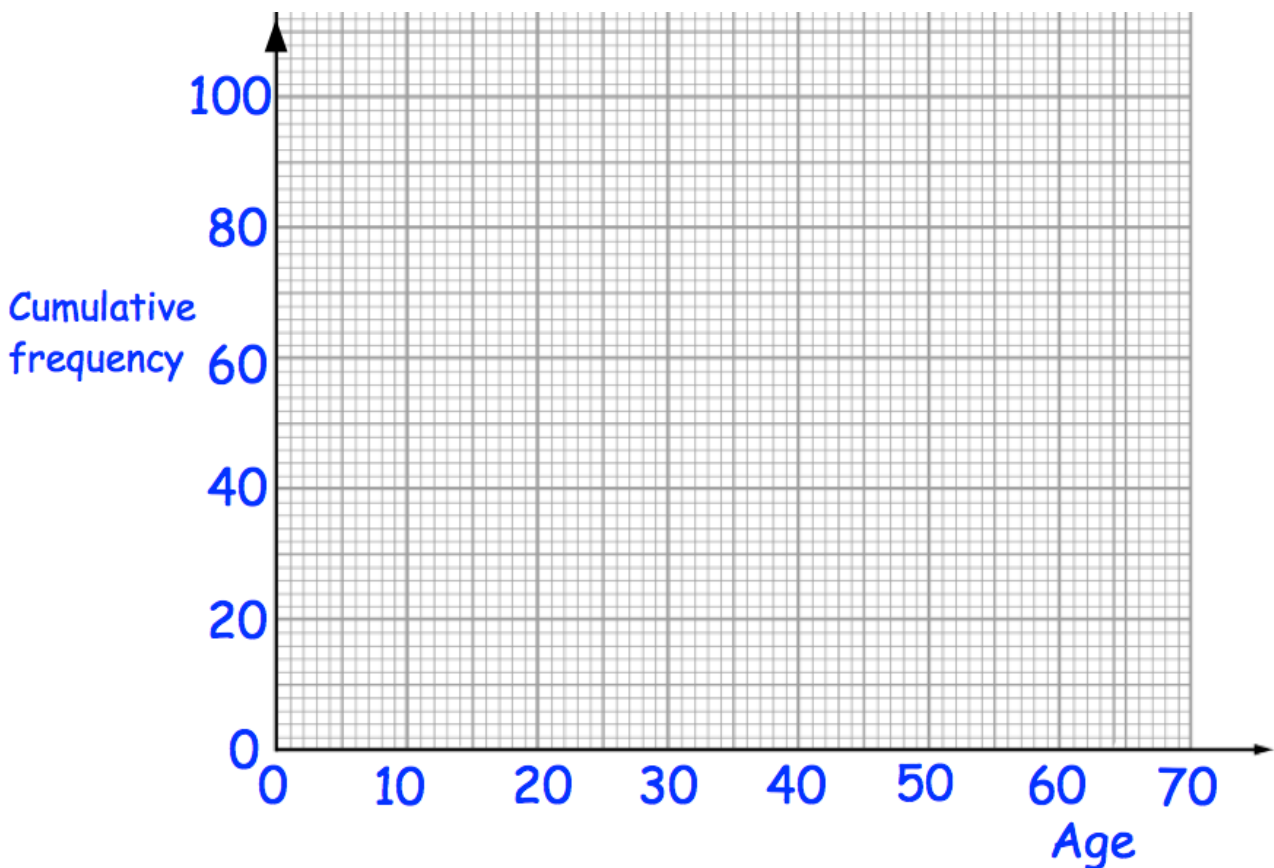
x = ..... y = .....  
**(4)**

15. The ages of 100 teachers were recorded. The table below shows this information.

Age, $x$ years	Frequency	Cumulative frequency
$20 < x \leq 30$	12	
$30 < x \leq 40$	30	
$40 < x \leq 50$	28	
$50 < x \leq 60$	22	
$60 < x \leq 70$	8	

- (a) Complete the cumulative frequency column in the table.

(1)



- (b) Draw a cumulative frequency graph for this information.

(2)

16.

The diagram shows the position of two towns, A and B.



A rugby club, R, has bearing of  $110^\circ$  from town A.

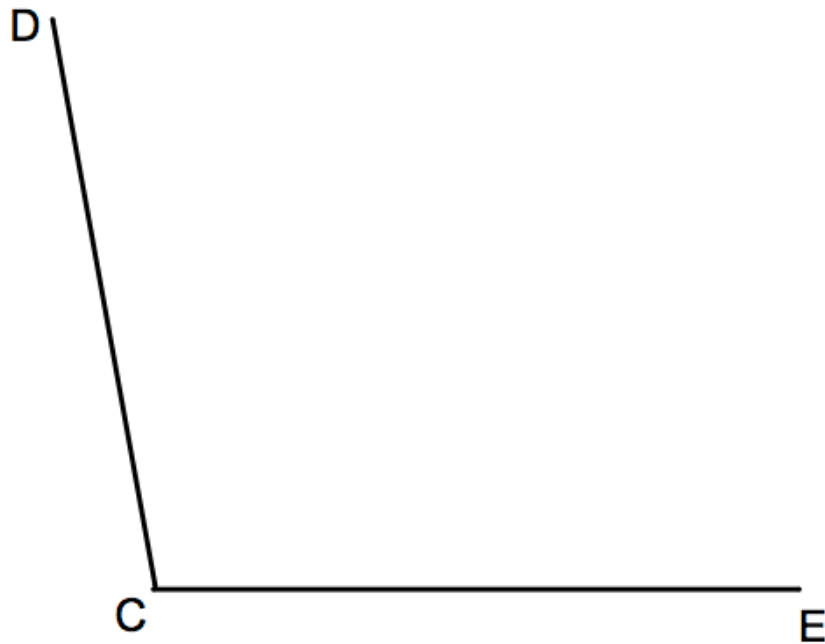
The rugby club, R, has bearing  $245^\circ$  from town B.

In the space above, show the position of the rugby club R.

Mark the position with a cross (x) and label it R.

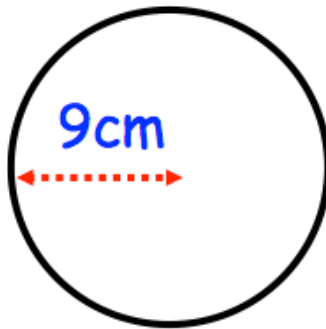
**(3)**

17. Construct the angle bisector.



(2)

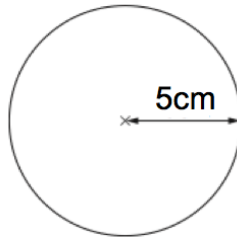
18.



Work out the circumference of the circle.  
Give your answer to 1 decimal place.

.....cm  
(2)

19.



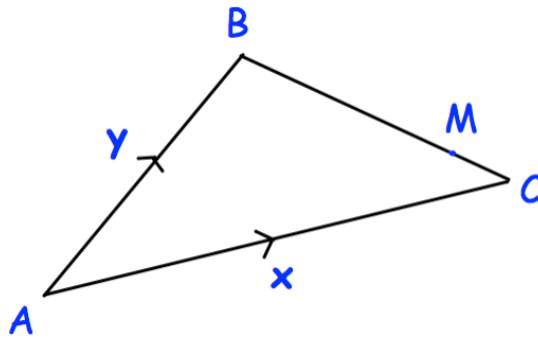
Work out the area of the circle.

State the units for your answer.

Give your answer to 2 decimal place.

.....  
(3)

20.



ABC is a triangle.

M lies on BC such that  $BM = \frac{4}{5} BC$

Express these vectors in terms of **x** and **y**

(a)  $\overrightarrow{BC}$

.....  
(1)

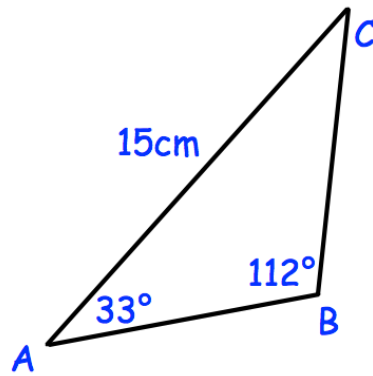
(b)  $\overrightarrow{BM}$

.....  
(1)

(c)  $\overrightarrow{AM}$

.....  
(1)

21.

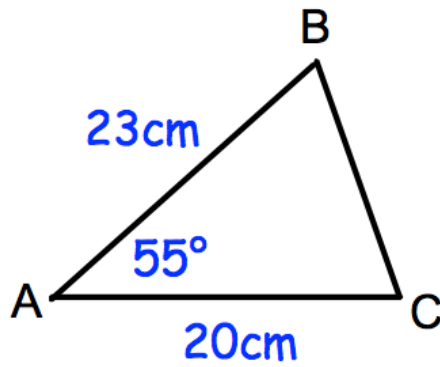


In triangle ABC the length of AC is 15cm.  
Angle ABC =  $112^\circ$   
Angle BAC =  $33^\circ$

Work out the length of BC.

.....cm  
(3)

22.



Calculate the length of BC.

.....cm  
(3)

23. Declan ran a distance of 200m in a time of 26.2 seconds.

The distance of 200m was measured to the nearest 10 metres.  
The time of 26.2 was measured to the nearest tenth of a second.

(a) Work out the upper bound for Declan's average speed.

.....m/s  
**(2)**

(b) Work out the lower bound for Declan's average speed.

.....m/s  
**(2)**

24. Write down the equation of the line that is parallel to  $x + 2y = 4$  and passes through the point (0, 5)

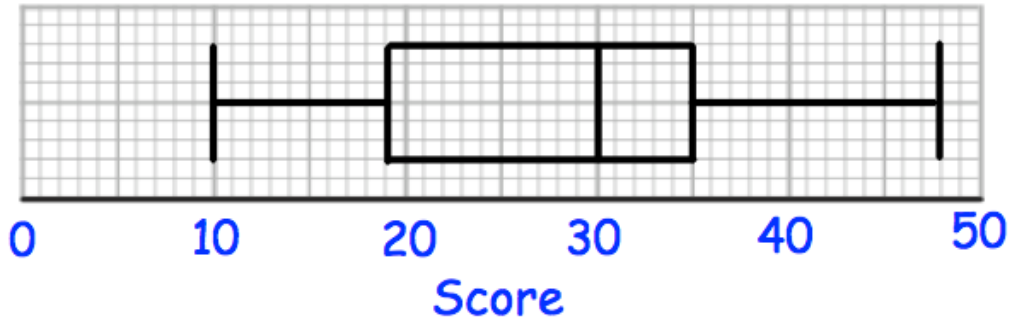
.....  
**(2)**

25. The point A is (5, -2) and the point B is (11, 1).

Find the equation of the line perpendicular to AB passing through the origin.

.....  
**(3)**

26. Mrs Davis sets her class a quiz, which has a maximum score of 50. The distribution of the scores are shown in a box plot below.



- (a) Write down the median score.

.....  
(1)

- (b) Write down the highest score.

.....  
(1)

- (c) Find the interquartile range.

.....  
(2)

Martin scored 35 marks.

- (d) What percentage of the class scored a lower mark than Martin?

.....%  
(1)

The interquartile range is a better measure of the spread of a distribution than the range.

Explain why.

.....  
.....  
(1)



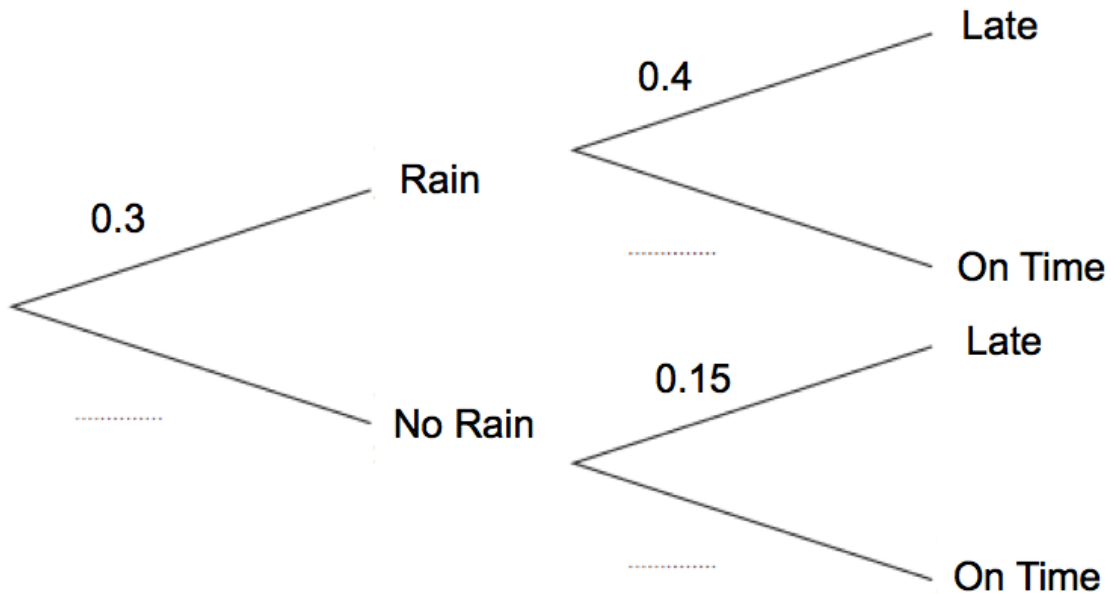
27. In a small village, one bus arrives a day.

The probability of rain in the village is 0.3.

If it rains, the probability of a bus being late is 0.4.

If it does not rain, the probability of a bus being late is 0.15.

(a) Complete the tree diagram



(2)

(b) Work out the number of days the bus will be late over a period of 80 days.

.....  
(3)

28. Charlie wants to find out what students think about school.  
For his sample he asks 10 Year 7 students.

This is not a good sample to use.

(a) Write down a reason why.

.....  
.....

(1)

He uses this question.

What do you think of chemistry?

Excellent

Very good

Good

(b) Write down one thing wrong with this question.

.....  
.....

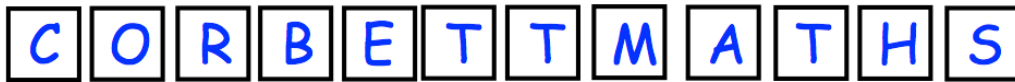
(1)

Charlie wants to find out how many hours students revise for their chemistry test.

(c) Design a suitable question.

(2)

29. There are 12 tiles in a bag.



Jim chooses two tiles at random from the bag.

What is the probability that the two tiles have the same letter?

.....  
(3)

30. The cost of a circular table is directly proportional to the square of the radius.  
A circular table with a radius of 40cm cost £50.

What is the cost of a circular table with a radius of 60cm?

£.....  
(3)

31. Solve the quadratic equation  $7x^2 - 25x + 2 = 0$

Give your answers to two decimal places.

.....  
(3)

32. Declan works in a confectioners.

He is asked to test a sample of 40 chocolates stratified by type of chocolate.

The table shows the number of each type of chocolate in the shop.

Type	Milk	Dark	White
Number	600	220	130

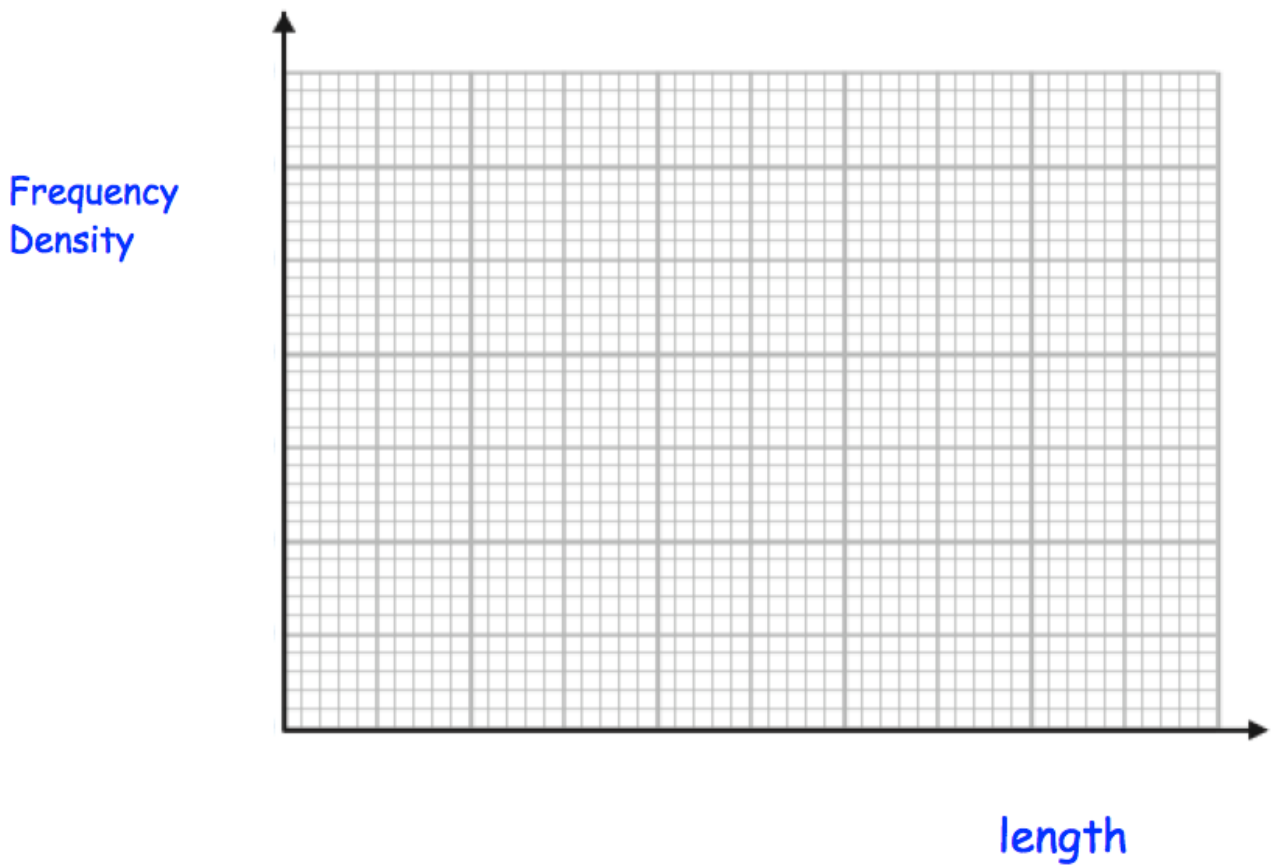
Calculate the number of dark chocolates required for his stratified sample.

.....  
(3)

33. The lengths of 200 fish in a pond,  $l$  centimetres, are recorded below.

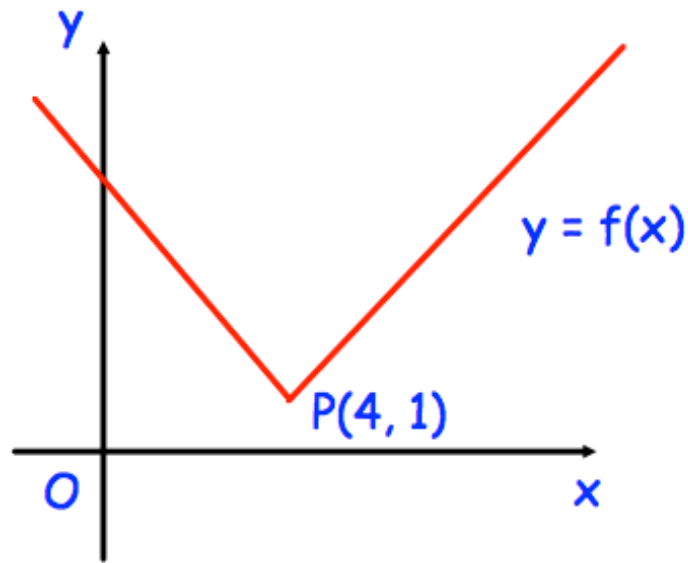
Length, $l$	Frequency
$0 < l \leq 4$	36
$4 < l \leq 6$	40
$6 < l \leq 8$	48
$8 < l \leq 12$	44
$12 < l \leq 20$	32

Draw a histogram for this data.



(3)

34. Here is the graph of  $y = f(x)$   
The point  $P(4, 1)$  is a point on the graph.



What are the coordinates of the new position of P when the graph  $y = f(x)$  is transformed to the graph of

(a)  $y = -f(x)$

(..... , .....)  
(1)

(b)  $y = f(x) + 4$

(..... , .....)  
(1)

(c)  $y = f(2x)$

(..... , .....)  
(1)

(d)  $y = f(x + 5)$

(..... , .....)  
(1)

35.

$$\frac{7}{x} - \frac{2}{x+2} = 3$$

.....  
(5)

