

# COUNTDOWN TO YOUR FINAL MATHS EXAM ...

## PART 6 (2017)

|   | Marks | Actual |    |
|---|-------|--------|---|
| Q1. Pie charts                            | 4     |        |   |
| Q2. Pie charts                            | 4     |        |   |
| Q3. Pie charts                            | 4     |        |   |
| Q4. Four operations                       | 4     |        |   |
| Q5. Percentages/Order of operations/Roots | 3     |        |   |
| Q6. Pie charts                            | 4     |        |   |
| Q7. Pie charts                            | 4     |        |   |
| Q8. Pie charts                            | 5     |        |   |
| Q9. Pie charts                            | 4     |        |   |
| Q10. Four operations                      | 3     |        |   |
| Q11. Four operations                      | 4     |        |   |
| Q12. Pie charts                           | 3     |        |   |
| Q13. Scale drawings and bearings          | 5     |        |   |
| Q14. Bearings                             | 5     |        |   |
| Q15. Bearings                             | 3     |        |   |
| Q16. Four operations                      | 1     |        |   |
| Q17. Multiplication                       | 3     |        |   |
| Q18. Bearings                             | 7     |        |   |
| Q19. Bearings                             | 7     |        |   |
| Q20. Scale drawing and bearings           | 6     |        |   |
| Q21. Four operations                      | 2     |        |   |
| Q22. Directed number                      | 3     |        |   |

**88**





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**Q1.** The table shows information about the numbers of fruit trees in an orchard.

| Apple tree | Pear tree | Plum tree |
|------------|-----------|-----------|
| 45         | 20        | 25        |

(a) The pictogram shows this information.

Complete the key for the pictogram.

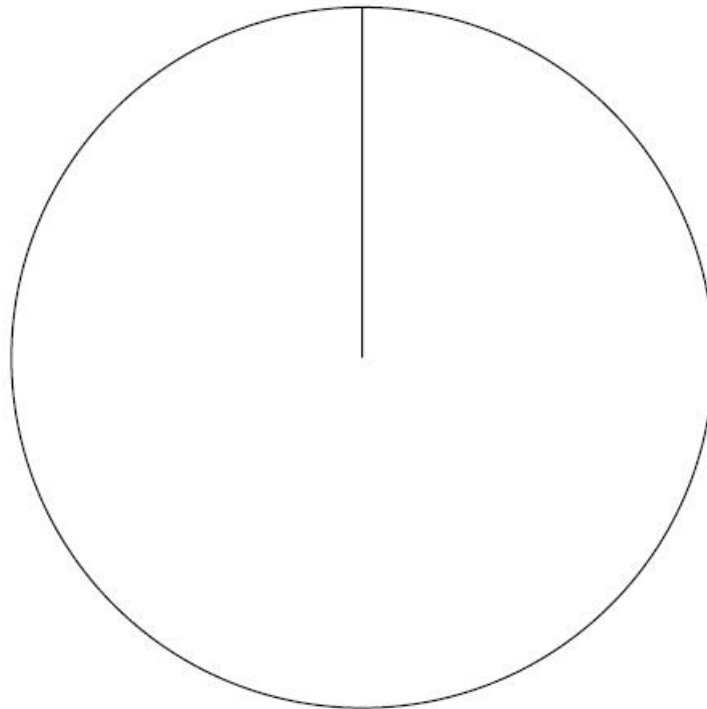
|            |   |   |
|------------|---|---|
| Apple tree |  | Key:  represents ..... trees |
| Pear tree  |  |   |
| Plum tree  |  |   |

(1)

(b) There are 90 fruit trees in the orchard.

| Apple tree | Pear tree | Plum tree |
|------------|-----------|-----------|
| 45         | 20        | 25        |

Draw an accurate pie chart for this information.

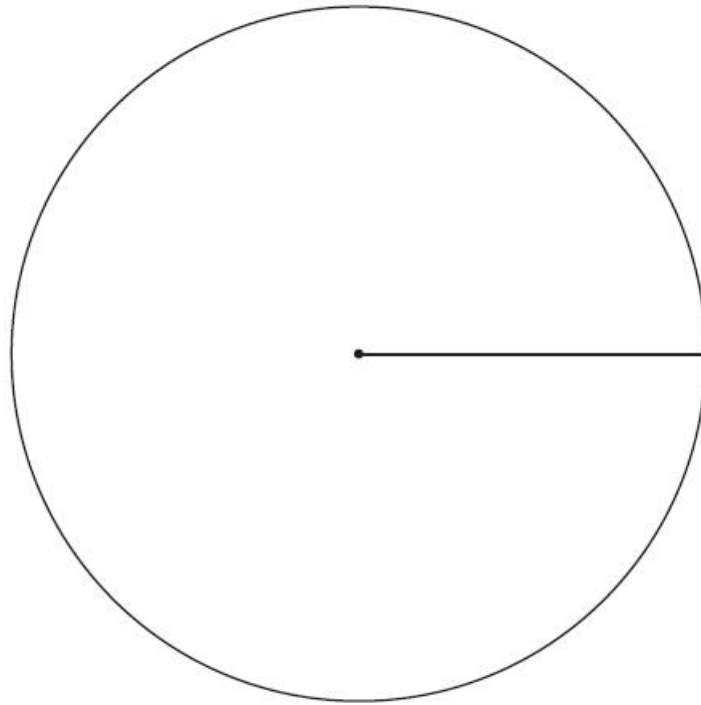


(3)  
(Total for question = 4 marks)

**Q2.** Mike asked 60 students to name their favourite fruit. Here are his results.

| Favourite Fruit | Frequency |
|-----------------|-----------|
| Apple           | 18        |
| Banana          | 23        |
| Orange          | 9         |
| Pear            | 10        |

Draw an accurate pie chart for his results.



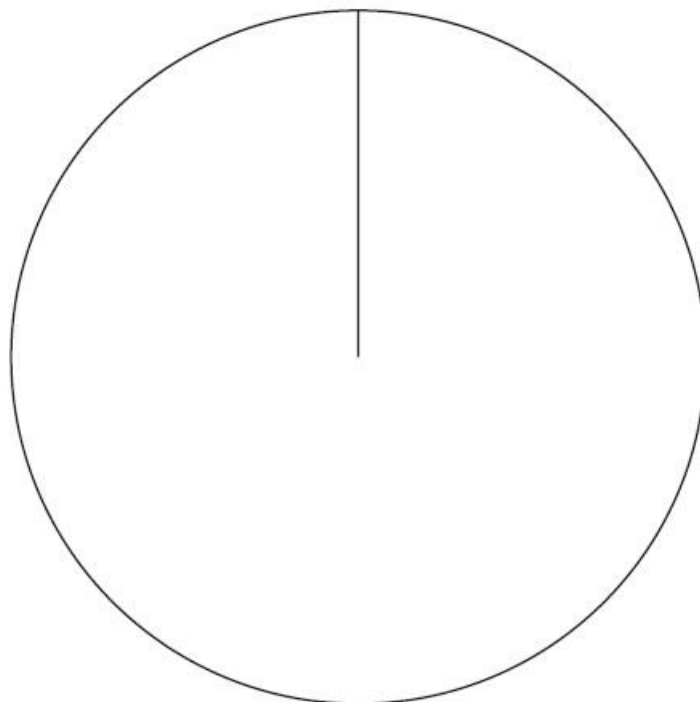
(Total for Question is 4 marks)

**Q3.** A group of Year 10 students was asked to choose a new subject to study.

The table shows information about the choices.

| Subject      | Number of students |  |
|--------------|--------------------|--|
| construction | 40                 |  |
| hairdressing | 56                 |  |
| tourism      | 24                 |  |

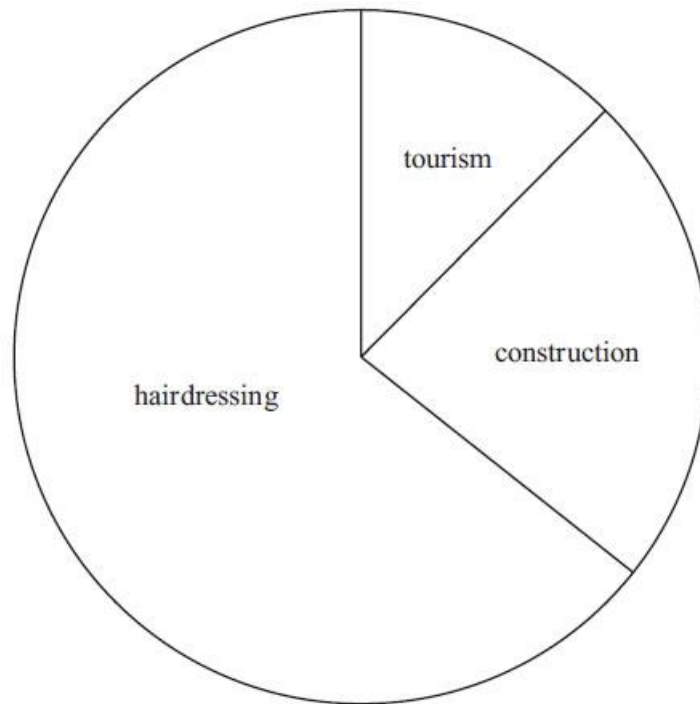
(a) Draw an accurate pie chart to show this information.



(3)

A group of Year 11 students was also asked to choose a new subject to study.

This pie chart shows information about their choices.



Danny says

"The pie charts show that hairdressing was chosen by more Year 11 students than by Year 10 students."

(b) Is Danny correct? .....

You must explain your answer.

(1)

(Total for Question is 4 marks)

**Q4.** Noah buys coffee sachets to use in his coffee maker.

There are 16 coffee sachets in a pack.

A pack costs £3.99

Noah uses 5 coffee sachets each day.

Work out the minimum amount that Noah spends on coffee sachets in one year.

(Total for question = 4 marks)

**Q5.** (a) Work out 50% of 86

(1)

(b) Work out  $3 + 5 \times 2$

(1)

(c) Write down an estimate for  $\sqrt{60}$

(1)

(Total for Question is 3 marks)

**Q6.** Rachel carried out a survey of 10 people to find out the type of fruit they like best.

The table gives information about her results.

| Type of fruit | Number of people |
|---------------|------------------|
| apple         | 2                |
| banana        | 5                |
| orange        | 3                |

(a) Which type of fruit is the mode?

**(1)**

In Rachel's survey, 2 out of 10 people like apples best.

(b) Write 2 out of 10 as a percentage.

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

Pete also carried out a survey to find out the type of fruit people like best.

He asked 30 people which type of fruit they like best.

He drew this pie chart for his results.

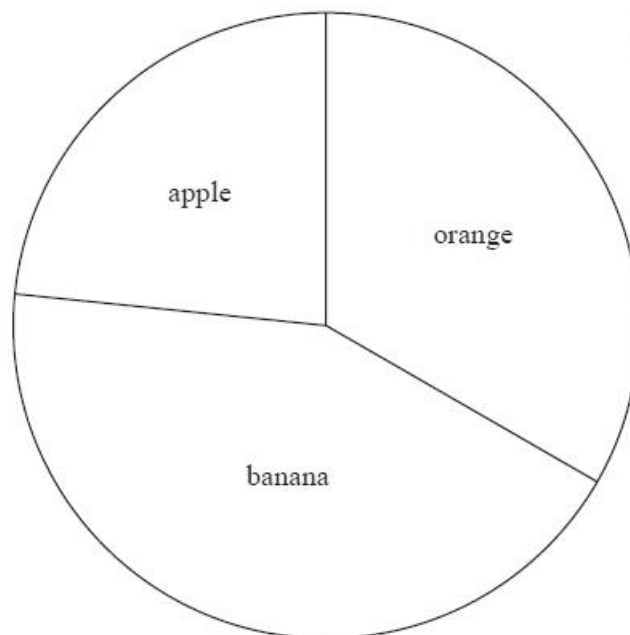


Diagram  
**accurately drawn**

A smaller proportion of people like bananas best in Pete's survey than in Rachel's survey.

(c) Explain how Pete's pie chart and Rachel's table show this.

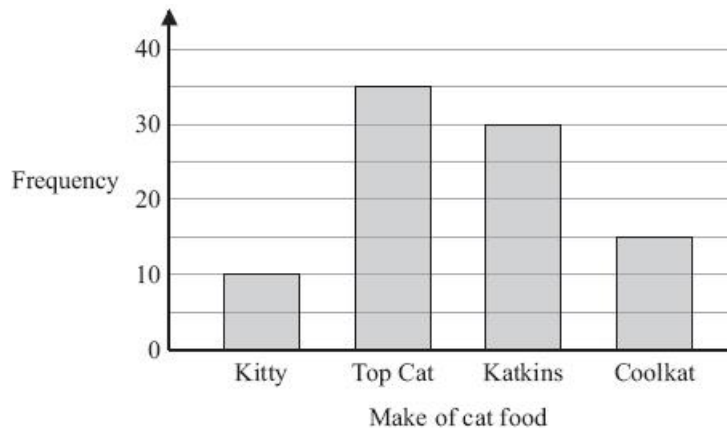
**(2)**

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

**Q7.** A survey was carried out for a magazine.

90 cat owners were asked to write down the make of cat food their cats liked best.

The bar chart shows information about the results.



This statement was in the magazine: '1 out of 6 cats like Coolkat best'.

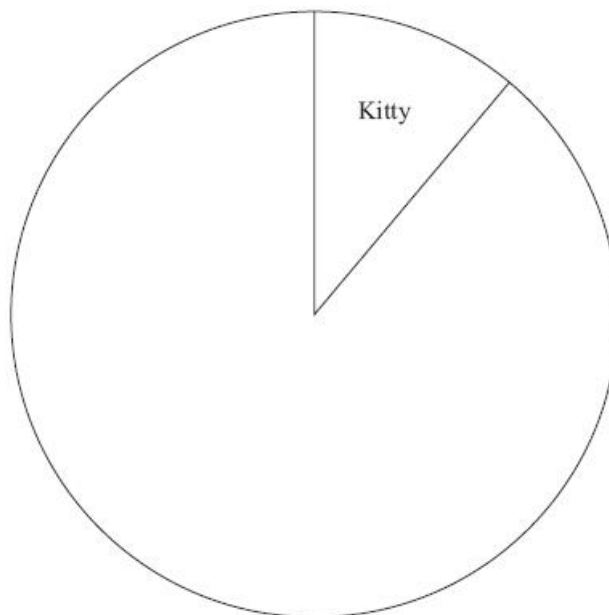
(a) Is the statement right?

You must explain your answer.

(1)

The information in the bar chart is going to be shown in a pie chart.

(b) Use the information in the bar chart to complete the pie chart.



(3)

(Total for Question is 4 marks)

**Q8.** The pie chart shows information about how the students in Year 11 get to school.

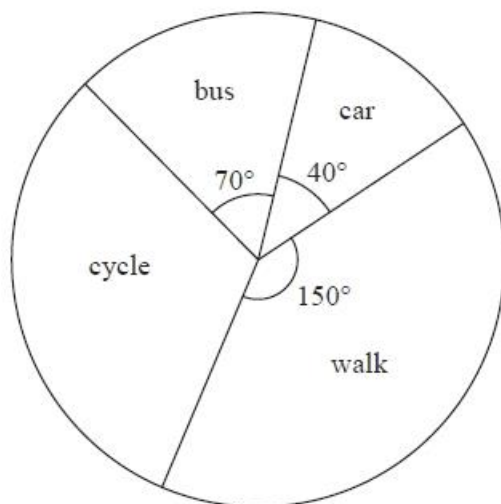


Diagram **NOT** accurately drawn

Mr Morley says, "Less than 10% of students in Year 11 get to school by car".

(a) Is Mr Morley correct?

You must explain your answer.

(2)

50 students in Year 11 cycle to school.

(b) How many students in Year 11 walk to school?

..... (3)  
(Total for Question is 5 marks)

**Q9.** There are only yellow pencils, red pencils, green pencils and blue pencils in a box.

The pie chart gives information about the numbers of pencils of each colour.

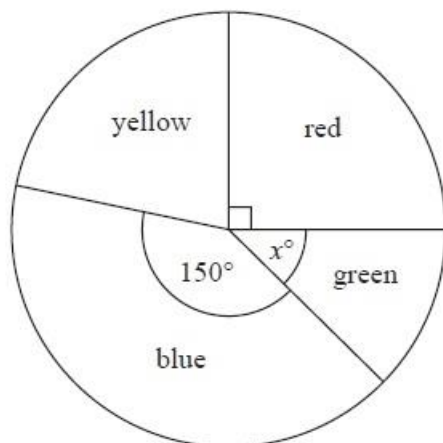


Diagram **NOT** accurately drawn

(a) What fraction of the total number of pencils in the box is red?

..... (1)

In the pie chart, the angle used for yellow is twice the angle used for green.

(b) Write down an expression, in terms of  $x$ , for the angle used for yellow.

..... (1)

There are 48 pencils in the box.

(c) Work out the number of blue pencils in the box.

..... (2)

**(Total for Question is 4 marks)**

**Q10.** (a) Work out  $27 + 38$

(1)

(b) Work out  $202 - 75$

(1)

(c) Work out  $2 \times 3 \times 5$

(1)

**(Total for Question is 3 marks)**

**Q11.** The table shows information about the cost of hiring a cement mixer from two companies.

| Cost of hiring cement mixer |           |                |                         |
|-----------------------------|-----------|----------------|-------------------------|
| Company                     | First day | Each extra day | Delivery and collection |
| Quick Mix                   | £13.50    | £6.90          | Free                    |
| Speedy Hire                 | £7.20     | £7.20          | £5.90                   |

Chris wants to hire a cement mixer for 5 days.  
He will hire the cement mixer from either Quick Mix or Speedy Hire.  
Chris wants to pay the least amount of money.

Which company should he choose?  
You must show all your working.

**(Total for Question is 4 marks)**

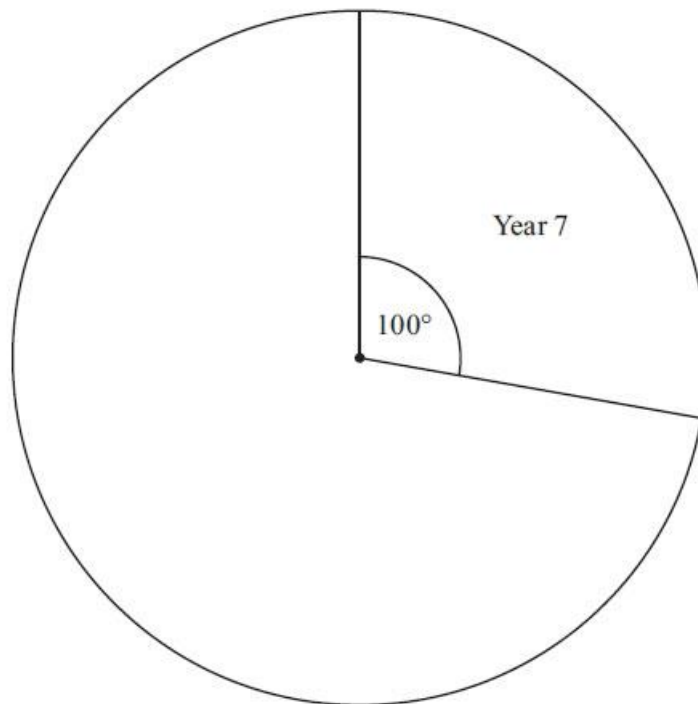


**Q12.** Each year group in a school raised money for charity.

The incomplete table and pie chart show some information about this.

Complete the table.

| Year Group | Amount raised |
|------------|---------------|
| 7          | .....         |
| 8          | £225          |
| 9          | .....         |
| 10         | £125          |
| 11         | £162.50       |
|            | £900          |



**(Total for Question is 3 marks)**

**Q13.** The map shows the positions of three places *A*, *B* and *C* on the edge of a lake.

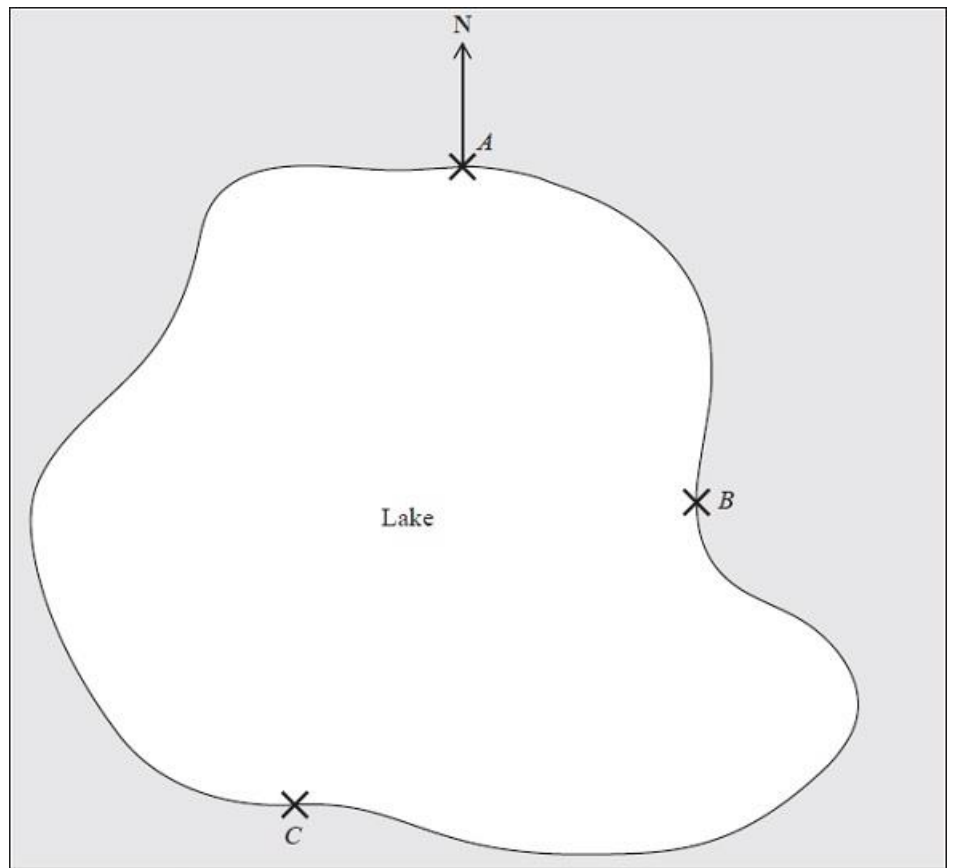
(a) Find the bearing of *B* from *A*.

**(1)**

A ferry travels in a straight line from *A* to *B*.

It then travels in a straight line from *B* to *C*.

A speedboat travels in a straight line from *A* to *C*.



Scale 1 cm represents 2 km

(b) How many more kilometres does the ferry travel than the speedboat?

You must show your working.

..... km **(4)**

**(Total for Question is 5 marks)**

**Q14.** The diagram shows part of a map.



(a) Find the bearing of the church from the tower.

.....° **(1)**

The scale of the map is 1 cm represents 2.5 km.

(b) Work out the real distance between the tower and the church.

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

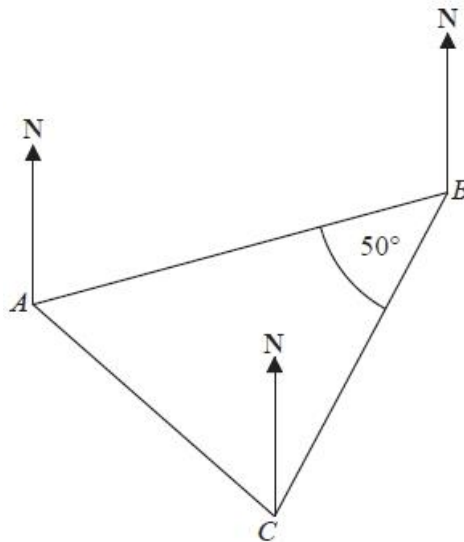
A school is 15 km due North of the church.

(c) On the diagram, mark with a cross (×) the position of the school. Label your cross S.

(2)

(Total for Question is 5 marks)

**Q15.** The diagram shows the positions of three points, *A*, *B* and *C*, on a map.



The bearing of *B* from *A* is  $070^\circ$

Angle *ABC* is  $50^\circ$   
 $AB = CB$

Work out the bearing of *C* from *A*.

.....<sup>o</sup>  
(Total for question is 3 marks)

**Q16.** Work out  $\frac{30 + 12}{5 + 3}$

.....  
(Total for question is 1 mark)

**Q17.** Work out  $1.83 \times 47$

(Total for Question is 3 marks)

**Q18.** Here is part of a map showing the position of a port **A**.



**B** is a lighthouse 36 km from **A** on a bearing of  $050^\circ$

(a) (i) Construct a diagram to show the position of **B**.  
Use a scale of 1cm represents 4 km.

(ii) Write down the bearing of **A** from **B**.

(3)

From the lighthouse at **B**, ships can be seen when they are within a range of 23 km of **B**.  
A ship sails due East from **A**.

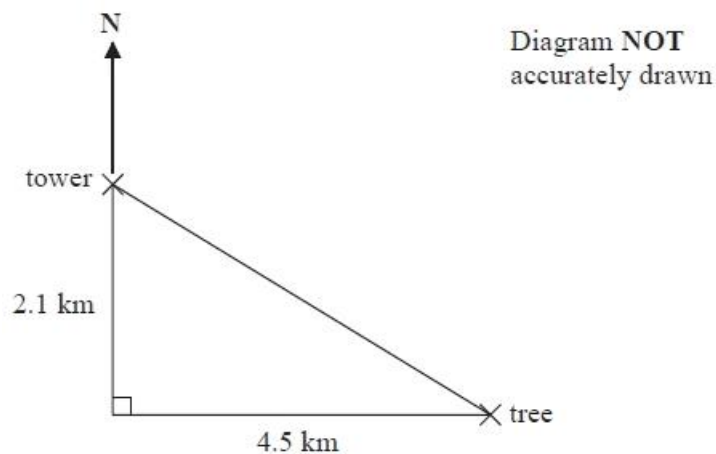
(b) Show, **by calculation**, that on this course this ship will not be seen from the lighthouse at **B**.

**You must not use a scale drawing.**

(4)

(Total for question = 7 marks)

**Q19.** The diagram shows the positions of a tower and a tree.



The tree is 2.1 km South of the tower and 4.5 km East of the tower.

(a) Work out the distance between the tower and the tree.  
Give your answer correct to one decimal place.

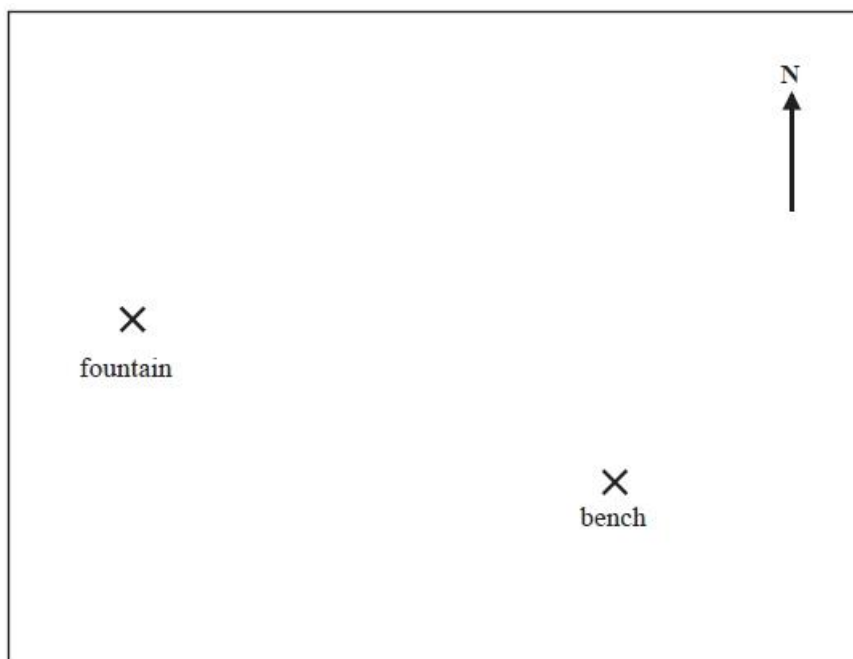
.....km (3)

(b) Work out the bearing of the tree from the tower.  
Give your answer correct to the nearest degree.

.....° (4)

**(Total for Question is 7 marks)**

**Q20.** The diagram shows a scale drawing of a garden.



Scale: 1 centimetre represents 2 metres

(a) Work out the real distance from the fountain to the bench.

..... metres (1)

(b) Measure the bearing of the bench from the fountain.

.....° (2)

Haavi is going to plant a tree in the garden. The tree must be

- less than 7 metres from the fountain,
- less than 12 metres from the bench.

(c) On the diagram show, by shading, the region in which Haavi can plant the tree.

(3)

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

**Q21.** One day Sally earned £60

She worked for 8 hours.

Work out Sally's hourly rate of pay.

£.....

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

**Q22.** (a) Work out  $+8 - 6$

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

(b) Work out  $-5 - 4$

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

(c) Work out  $-12 \div +4$

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

**(Total for Question is 3 marks)**