

1. (a) Four portions of chips and six pieces of fish cost £16.70. A portion of chips costs 95p.  
How much does **one** piece of fish cost?

[4]

- (b) What is 55% of 6.4?

[2]

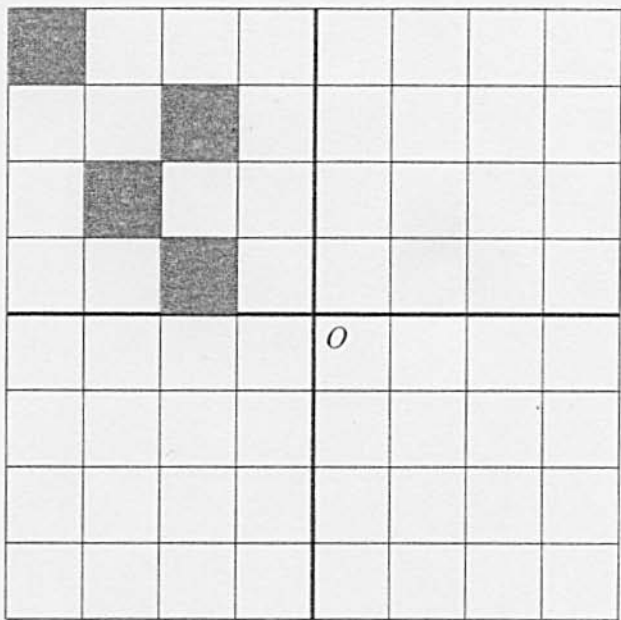
2. (a) Lynda changed £350 into euros, when the rate of exchange was £1 = 1.62 euros.  
How many euros did she get?

[2]

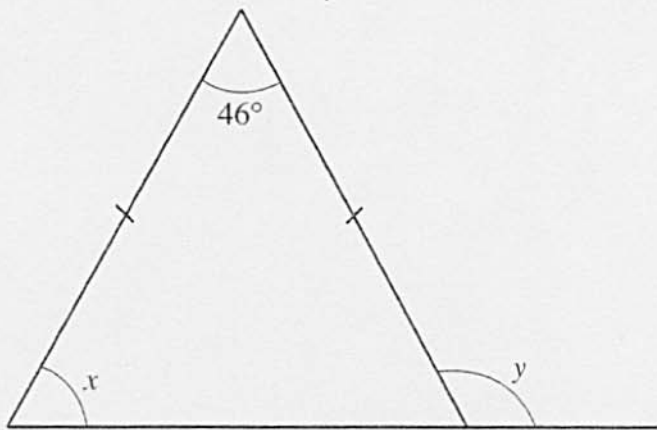
- (b) During her holiday Lynda spent 187.92 euros on trips.  
How much is this in £s?

[2]

3. Draw patterns like the given one in each of the other 3 sections so that the completed pattern has rotational symmetry of order 4 about  $O$ . [3]



4. Find the values of the angles marked  $x$  and  $y$ .



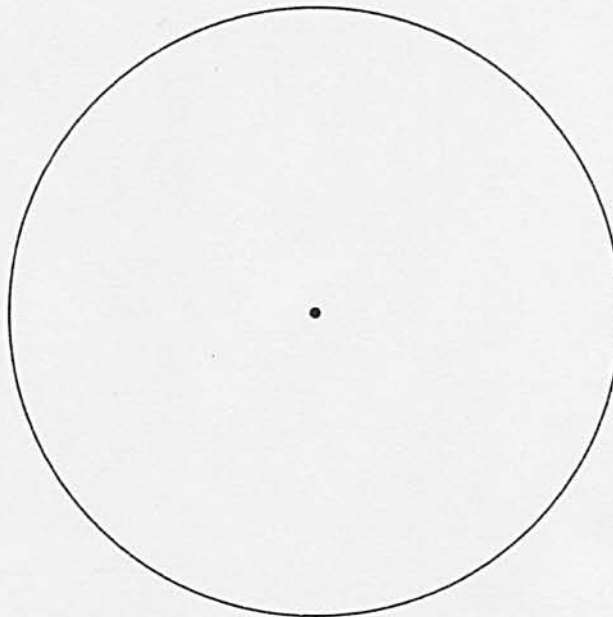
$x = \dots\dots\dots^\circ$        $y = \dots\dots\dots^\circ$

5. The colour of each of 80 balloons in a box was noted. The results were as follows.

Colour of the balloon	Number of balloons
Red	30
Blue	22
Yellow	20
Green	8

Draw a pie chart to illustrate these results.

You should show how you calculate the angles of your pie chart.



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6. Plates are sold in two different sized boxes, small and large. The small boxes each contain 6 plates and the large boxes each contain 9 plates.

Richard has  $x$  small boxes each containing 6 plates.

- (a) Write down, in terms of  $x$ , the total number of plates there are in these boxes.

[1]

- (b) Richard has 7 more of the large boxes than he has of the small boxes.  
Write down, in terms of  $x$ , the number of large boxes he has.

[1]

- (c) Write down, in terms of  $x$ , the total number of plates in the large boxes.

[1]

- (d) Write down, in terms of  $x$ , the total number of plates altogether. You must simplify your answer as far as possible.

[3]

7. (a) A carpenter makes a piece of furniture for £280 and sells it at a profit of 35%.  
What is the selling price?

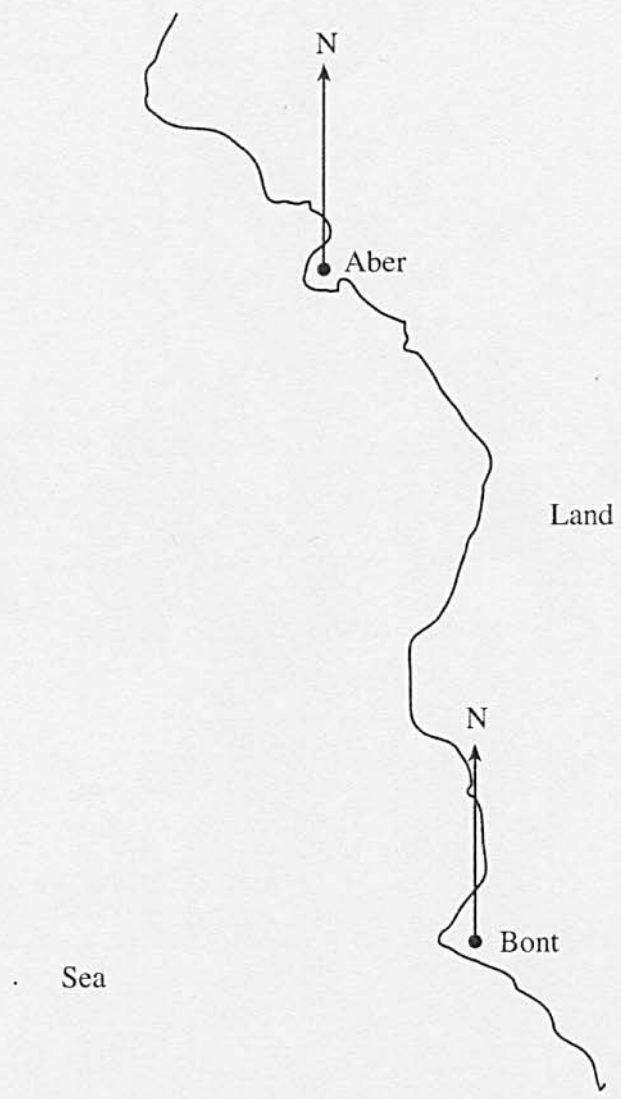
[3]

- (b) What percentage of £250 is £55?

[2]

8. Aber and Bont are two villages near the coast. A yacht is on a bearing of  $235^\circ$  from Aber and on a bearing of  $292^\circ$  from Bont. Draw these bearings and mark the position of the yacht as  $C$ .

[3]



9. Solve

(a)  $4x + 5 = 13$ .

[2]

(b)  $6(x - 3) = 24$ .

[3]

10. Calculate the average speed, in m.p.h., of a car that travels 143 miles in 2 hours 45 minutes.

[3]

11. Each of the following three questions appeared on different questionnaires.  
For each question write **one** statement to criticise the use of the question on a questionnaire.

(a)

*How often do you watch television?*  
  
Never  Average  Above average

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[1]

(b)

*Write down your weight? .....*

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[1]

(c)

*How many CDs on average do you buy in a month?*  
  
0-2  2-4  4-6  6 or more

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[1]

12. Elliot measures the diameter of a £2 coin and finds it to be 28mm.  
Clearly stating the units of your answers, calculate

(a) the circumference of his £2 coin.

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[2]

(b) the area of one circular face of his £2 coin.

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[3]

13. Express 882 as a product of prime numbers in index form.

[3]

14. Find, to the nearest penny, the compound interest when £2000 is invested at 6% per annum for 3 years.

[4]

15. The masses of 90 pupils were measured to the nearest kilogram. The table shows a grouped frequency distribution of the results.

Mass, $m$ (to the nearest kg)	Number of pupils
$30 \leq m < 40$	3
$40 \leq m < 50$	24
$50 \leq m < 60$	30
$60 \leq m < 70$	22
$70 \leq m < 80$	11

Find an estimate for the mean mass of the pupils.

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16.

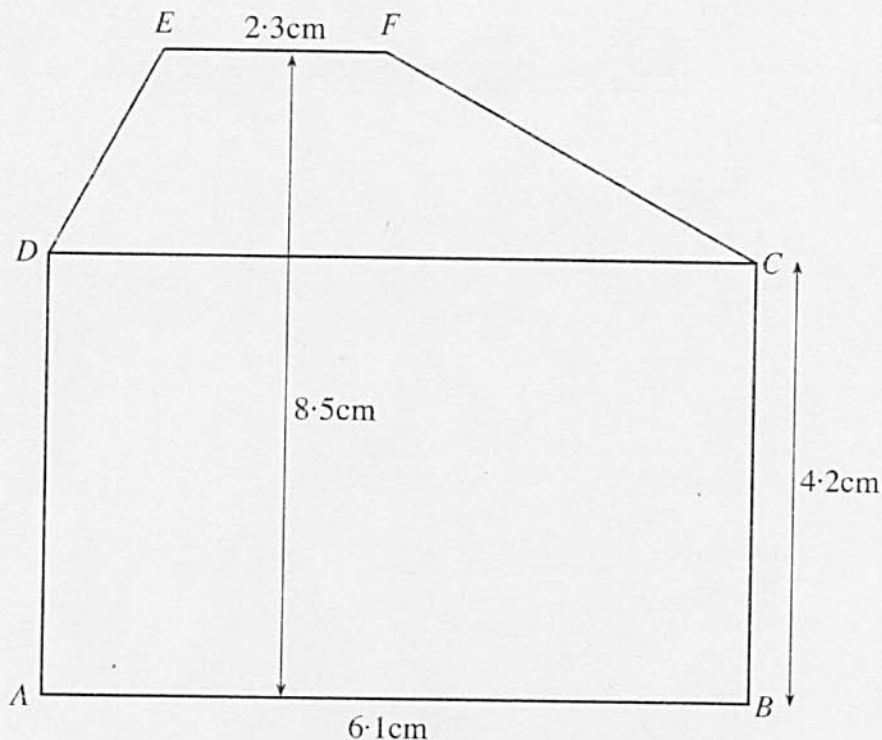


Diagram not drawn to scale.

$ABCFED$  represents the uniform cross-section of a solid block of material.  $ABCD$  is a rectangle in which  $AB = 6.1\text{ cm}$  and  $BC = 4.2\text{ cm}$ .  $EF$  is of length  $2.3\text{ cm}$  and is parallel to  $AB$ . The distance between  $EF$  and  $AB$  is  $8.5\text{ cm}$ .

(a) Calculate the area of cross-section of the block.

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- (b) The block has this uniform cross-section along its length of 12.6 cm and has a mass of 2 kg. Calculate the density, in  $\text{g/cm}^3$ , of the material from which the block is made.

[4]

17. A solution to the equation

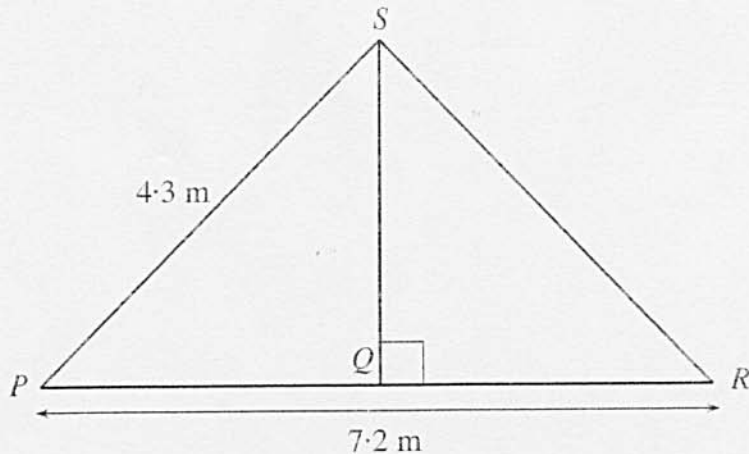
$$x^3 + 6x - 60 = 0$$

lies between 3 and 4.

Use the method of trial and improvement to find this solution correct to one decimal place.

[4]

18.



*Diagram not drawn to scale.*

$PQRS$  represents the symmetrical cross-section of the roof of a house, where  $SQ$  is perpendicular to  $PR$  and  $Q$  is the mid-point of  $PR$ . The width of the house,  $PR$ , is  $7.2$  m and the length of the rafter,  $PS$ , is  $4.3$  m. Calculate the height  $SQ$ .

19. Solve the following simultaneous equations by an algebraic (not graphical) method.  
Show all your working.

$$\begin{aligned}4x + 5y &= -5 \\ 6x + 4y &= 3\end{aligned}$$

[4]

20. (a) Write **each** of the following numbers in standard form.

(i) 73 400 000

[1]

(ii) 0.00054

[1]

- (b) Find, in standard form, the value of

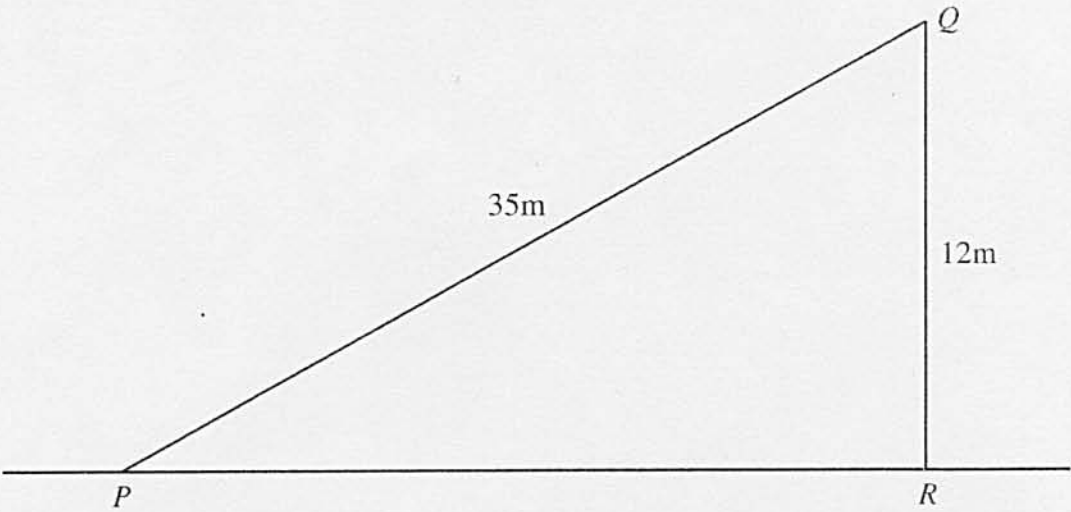
$$(3.6 \times 10^5) \div (7.8 \times 10^{-6}).$$

[2]

21. (a) The angle of elevation of the top of a building from a point 75 m horizontally from the foot of the building is  $48^\circ$ . Calculate the height of the building, giving your answer to an appropriate degree of accuracy.

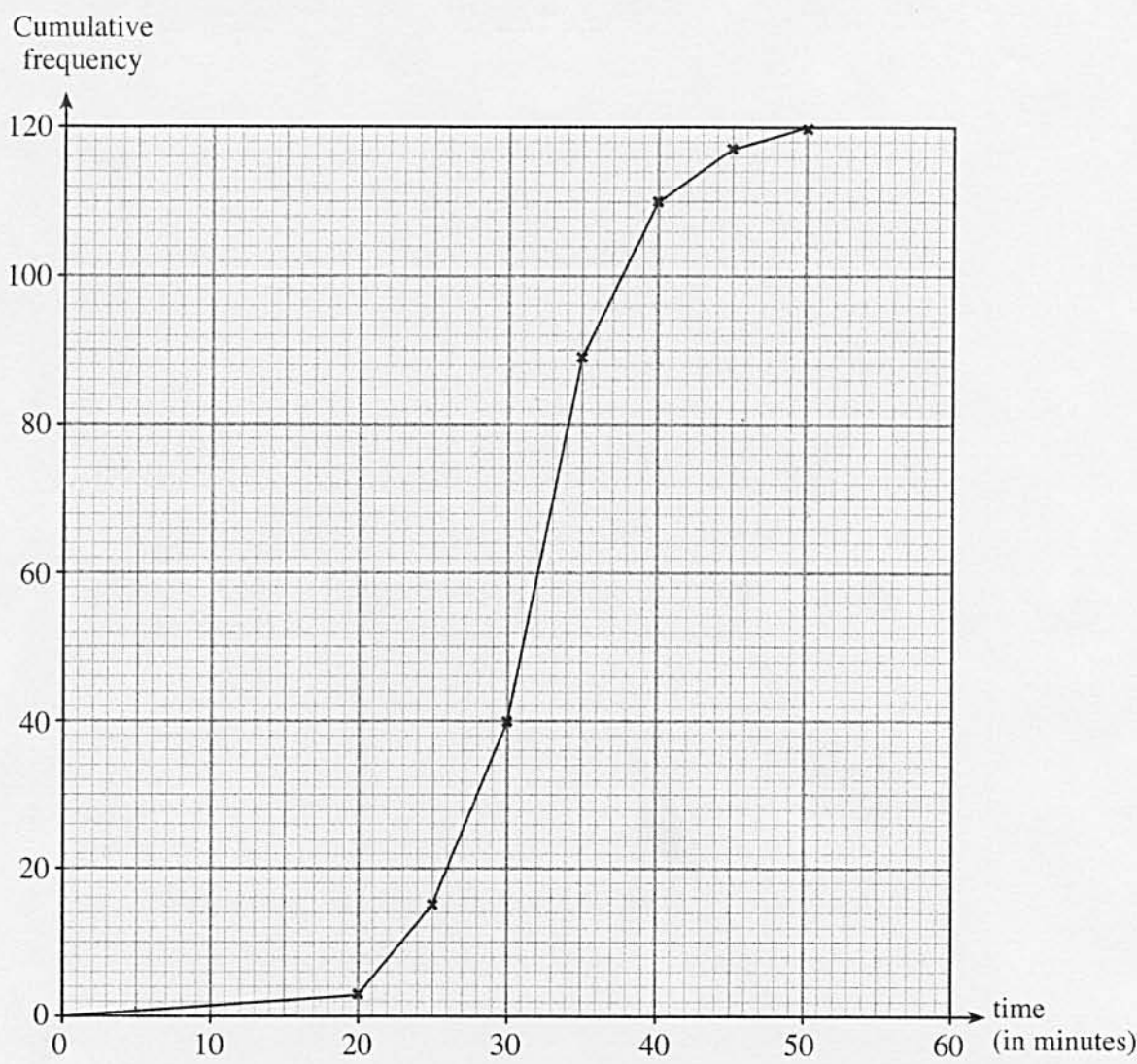
[3]

(b) Triangle  $PQR$  is right-angled at  $R$ . the length of  $PQ$  is 35 m and the length of  $QR$  is 12 m. Calculate the size of  $\hat{QPR}$ .



[3]

22. The times taken, in minutes, by 120 people to complete a task were recorded. Below is a cumulative frequency polygon of the results.



Use the cumulative frequency polygon to find

(a) the median time taken to complete the task,

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[1]

(b) how many people took more than 38 minutes to complete the task.

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[2]

23. (a) Simplify  $2a^5b^2 \times 3a^3b$ .

[2]

- (b) Factorise  $3a^2 - 6ac$ .

[2]

24. On the graph paper provided on the next page, draw the region which satisfies all of the following inequalities.

$$\begin{aligned}x &\geq -3 \\y &\geq 2x - 1 \\y &\geq 0 \\ \text{and } y &\leq 3 - x\end{aligned}$$

**Make sure that you clearly indicate the region that represents your answer.**

[4]

