OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

MATHEMATICS SYLLABUS A 1962/2

PAPER 2 (Foundation Tier)

Wednesday **15 JUNE 2005** Morning 1 hour 30 minutes

Candidates answer on the question paper.
Additional materials:
Electronic Calculator
Geometrical instruments
Tracing paper (optional)

Candidate Name	Centre Number	Candidate Number

TIME 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and Candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Show your working. Marks may be given for working that shows that you know how to solve the problem even if you get the answer wrong.
- You are expected to use an electronic calculator for this paper.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each question or part question.
- Unless otherwise instructed in the question, take π to be 3.142 or use the π button on your calculator.

FOR EXAMINER'S USE

This question paper consists of 19 printed pages and 1 blank page.

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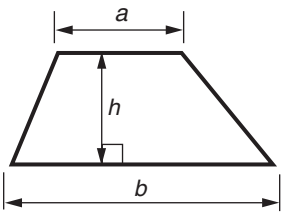
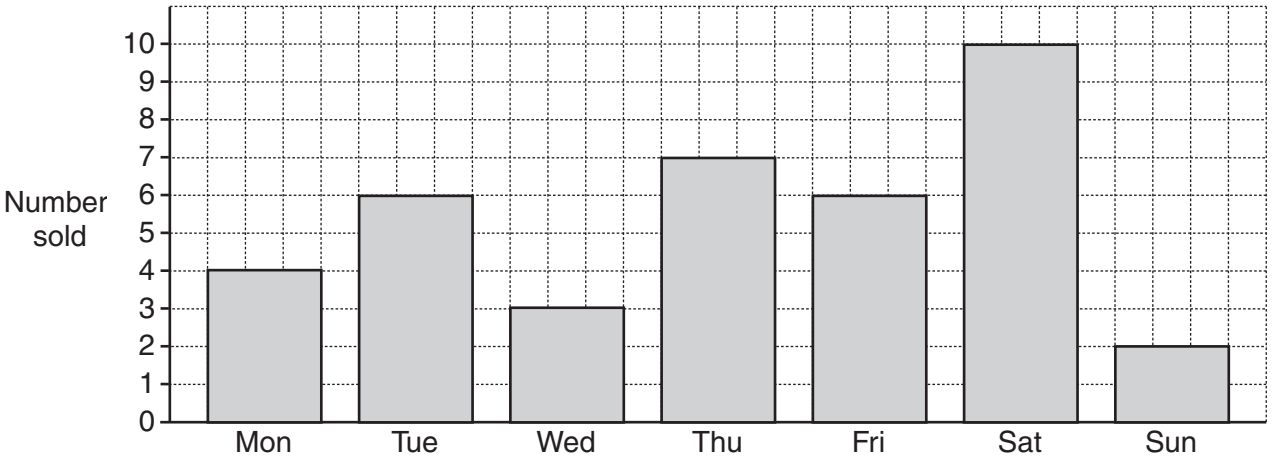
[Turn over

Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2}(a + b)h$



1 The bar chart shows the number of Scrummy Cookies sold in a shop during one week.



(a) How many Cookies were sold on Wednesday?

(a) _____[1]

(b) On which day was the largest number of Cookies sold?

(b) _____[1]

(c) How many Cookies were sold in the whole week?

.....

(c) _____[2]

(d) Find the range of the number of Cookies sold.

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(d) _____[1]

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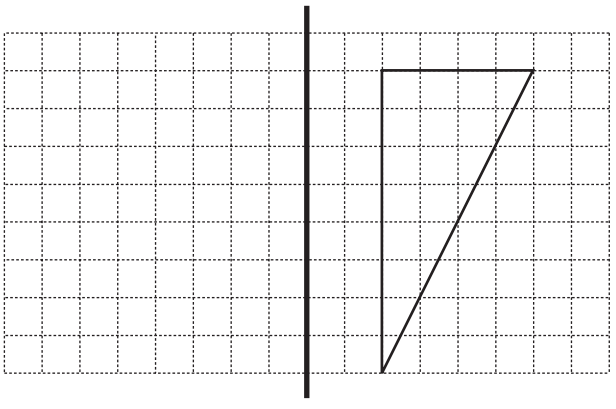
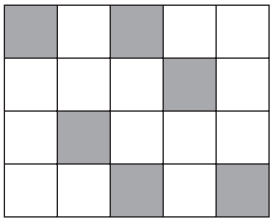
2 Draw the reflection of the shape in the mirror line.



[2]

3

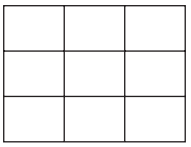


(a) What fraction of the diagram is shaded?
Give your answer in its lowest terms.

.....

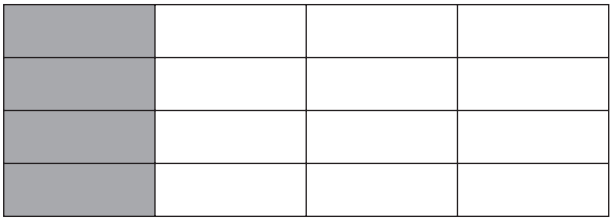
(a) _____[2]

(b) Shade $\frac{2}{3}$ of this diagram.



[1]

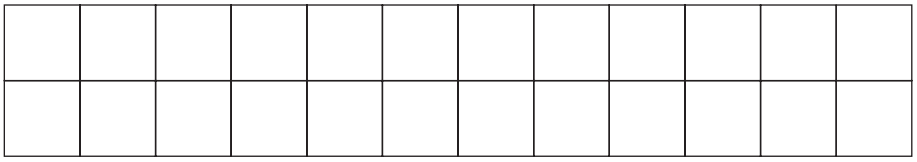
(c) What percentage of this diagram is shaded?



.....

(c) _____% [1]

(d) Anwar uses 24 tiles to make this rectangle.



This size of this rectangle is 2 by 12 or 12 by 2.

Write down the sizes of three different rectangles he can make using all 24 tiles.

.....

.....

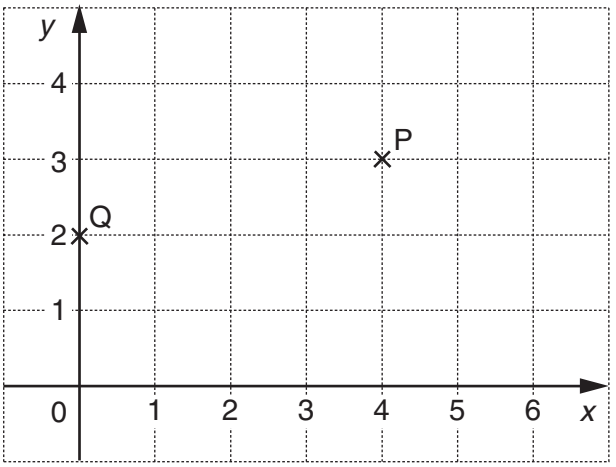
.....

(d) First rectangle _____ by _____[1]

Second rectangle _____ by _____[1]

Third rectangle _____ by _____[1]

4



Write down the coordinates of the points P and Q.

P (_____ , _____)[1]

Q (_____ , _____)[1]

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5 The table shows the distances, in miles, between some places in England.
For example the distance from Leeds to Sheffield is 36 miles.

Birmingham	Leeds	Nottingham	Peterborough	Sheffield	Stoke
115					
53	74				
86	118	57			
76	36	44	93		
47	93	59	98	54	

(a) How far is it from Birmingham to Peterborough?

(a) _____ miles [1]

(b) Mandy left Birmingham and went to Nottingham.
From Nottingham she then went to Sheffield before returning directly to Birmingham.
Work out how far she travelled altogether.

.....

.....

(b) _____ miles [2]

(c) Mandy left Birmingham at 1:25pm.

(i) Write this time using the 24 hour clock.

(c)(i) _____[1]

(ii) She arrived home at 8:15pm.
How long did her journey take ?

.....

.....

.....

(ii) _____ hours _____ minutes [2]

6 **(a)** Rides at a fairground cost £1.50 each.

How many rides can Chris have if he has £5 to spend?

.....

(a) _____[2]

(b) Sam buys an ice cream for £1.25 and some candy floss for 99p.

How much change should he get from £10?

.....

(b) £ _____[2]

(c) A stall holder paid £25.50 to rent his stall.
He paid £43.20 for his stock.
His takings were £113.10.

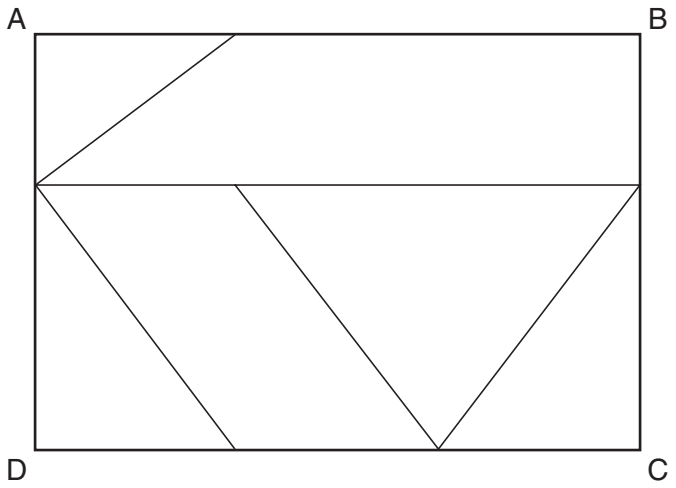
How much profit did he make?

.....

.....

(c) £ _____[2]

7



(a) Measure accurately the length AD. **(a)**.....cm [1]

(b) Mark the mid-point of the edge DC and label it M. [1]

(c) Mark a right angle on the diagram. [1]

(d) The diagram contains two congruent shapes. Mark each of them with a star (*). [1]

(e) The diagram also contains a parallelogram. Shade the parallelogram. [1]

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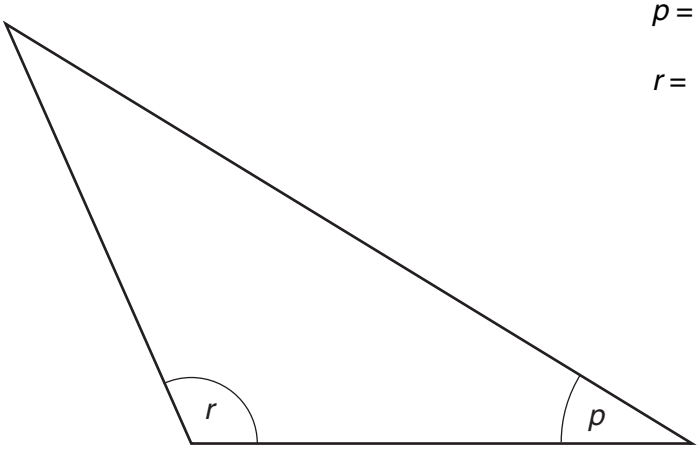
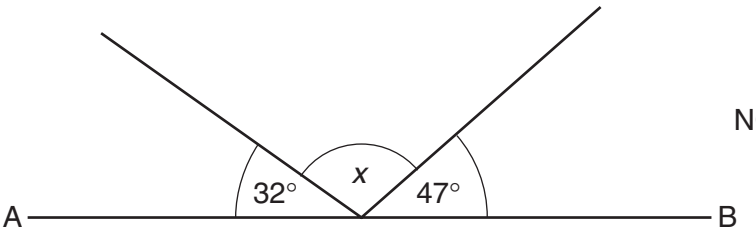
8 **(a)** Measure angles *p* and *r*.



p = _____° [1]

r = _____° [1]

(b)



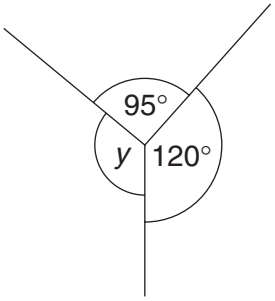
NOT TO SCALE

AB is a straight line.
Work out angle *x*.
Give a reason for your answer.

.....

x = _____° because _____[2]

(c)



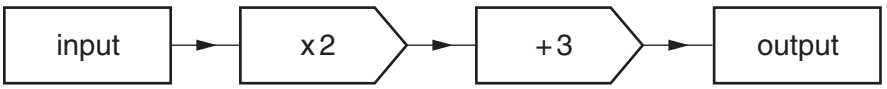
NOT TO SCALE

Work out angle *y*.
Give a reason for your answer.

.....

y = _____° because _____[2]

9 The diagram shows a number machine.



(a) Work out the output when the input is

(i) 3,

.....

.....

(a)(i) _____[1]

(ii) 0,

.....

.....

.....

(ii) _____[1]

(iii) –2.

.....

.....

.....

(iii) _____[2]

(b) Work out the input when the output is 15.

.....

.....

.....

(b) _____[2]

10 **(a)** Write down the next term in each of the following sequences.

(i) 3, 7, 11, 15, ...

(a)(i) _____[1]

(ii) 32, 25, 18, 11, ...

(ii) _____[1]

(b) When $t = 2$, $x = 3$ and $y = \frac{1}{2}$ work out

(i) $4t + 2x$,

.....

.....

(b)(i) _____[2]

(ii) $6y$.

.....

.....

(ii) _____[1]

---

11 **(a)** Write the number 17.4839 correct to

(i) 3 decimal places,

(a)(i) _____[1]

(ii) 2 decimal places,

(ii) _____[1]

(iii) the nearest whole number.

(iii) _____[1]

(b) Use your calculator to work these out.

(i) $\sqrt{14.44}$

(b)(i) _____[1]

(ii) $2.3 \times 15 + 7$

(ii) _____[1]

(iii) 3.9^2

(iii) _____[1]

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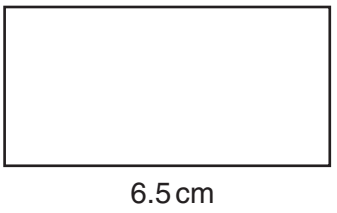
12 **(a)** Find the area of this rectangle.



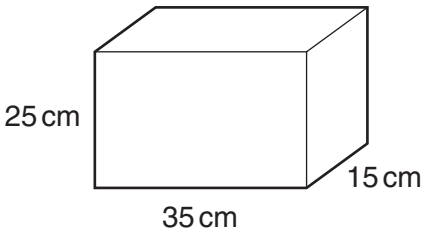
NOT TO SCALE

.....

.....

(a) _____ cm^2 [1]

(b) Find the volume of this cuboid.



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(b) _____ cm^3 [2]

13 Jenny went on holiday to France.

(a) The rate of exchange was

£1 = €1.48.

(i) She changed £90 into euros.

How many euros did Jenny receive?

.....

.....

(a)(i) € _____[2]

(ii) She bought a set of crayons for €2.59.

Find the cost of the crayons in pounds.

.....

.....

(ii) £_____[2]

(b) Jenny bought a melon and 0.5 kg of grapes. She spent €3.13.
The melon cost €1.45.

Find the cost, in euros, of one kilogram of grapes.

.....

.....

.....

.....

(b) € _____[3]

(c) Jenny also bought some apples and oranges. The ratio of apples to oranges was 4 : 1.
She bought 12 apples.

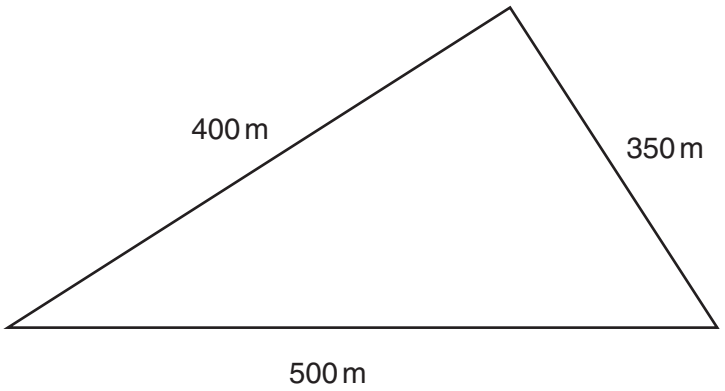
How many oranges did Jenny buy?

.....

.....

(c) _____[2]

14 A sketch of a triangular field is shown below.



Make an accurate scale drawing of the field.
Use a scale of 1 cm to 50 m.
Leave in all your construction arcs.

[3]

15 The marks of 25 students in a Maths exam are listed in the unordered stem and leaf diagram below.

3	2 0 4
4	8 6
5	3 2 1
6	5 9 7
7	1 4 7 0 9 4 5
8	0 2 9 6 0
9	4 6

3 | 2 represents 32

(a) Write these marks in an **ordered** stem and leaf diagram.

3	
4	
5	
6	
7	
8	
9	

[2]

(b) Work out the range of the marks.

.....

(b) _____[1]

(c) (i) What is the probability that a student chosen at random scored 80?

.....

.....

.....

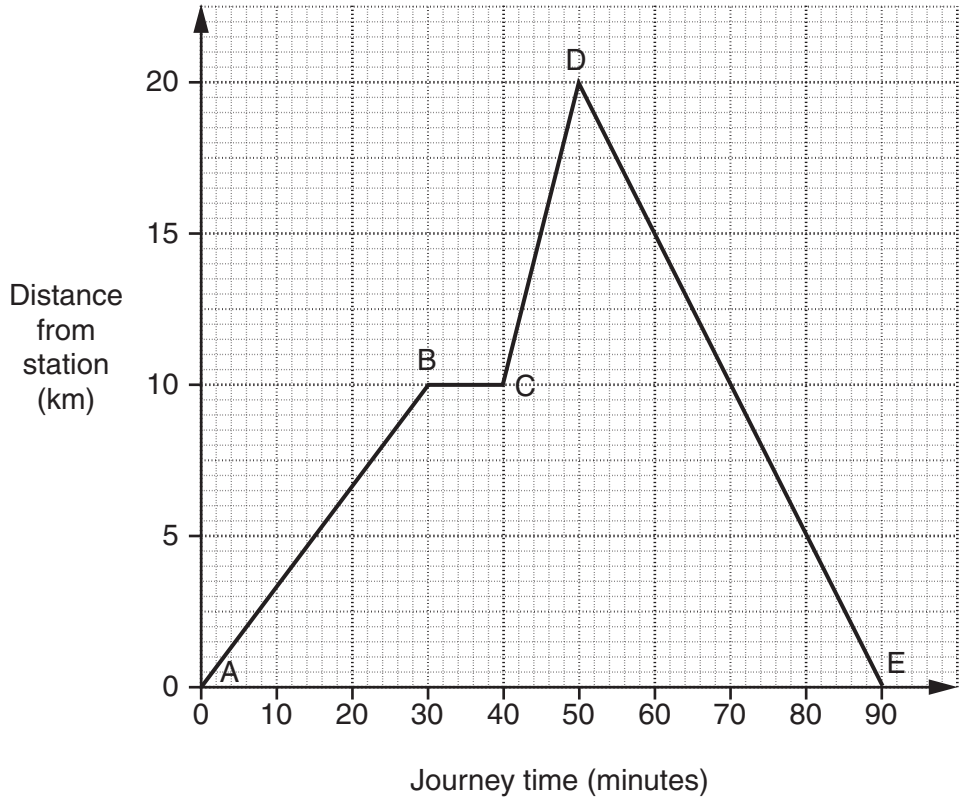
(c)(i) _____ [1]

(ii) What is the probability that a student chosen at random scored less than 60?

.....

(ii) _____ [2]

16 The graph below represents the journey of a steam train.



(a) How far did the train travel in the first 10 minutes?

(a) _____ km [1]

(b) What does the line BC represent?

_____[1]

(c) Tracy thinks that the line DE represents the train going down hill.

She is wrong.

What does the line DE represent?

_____[1]

_____

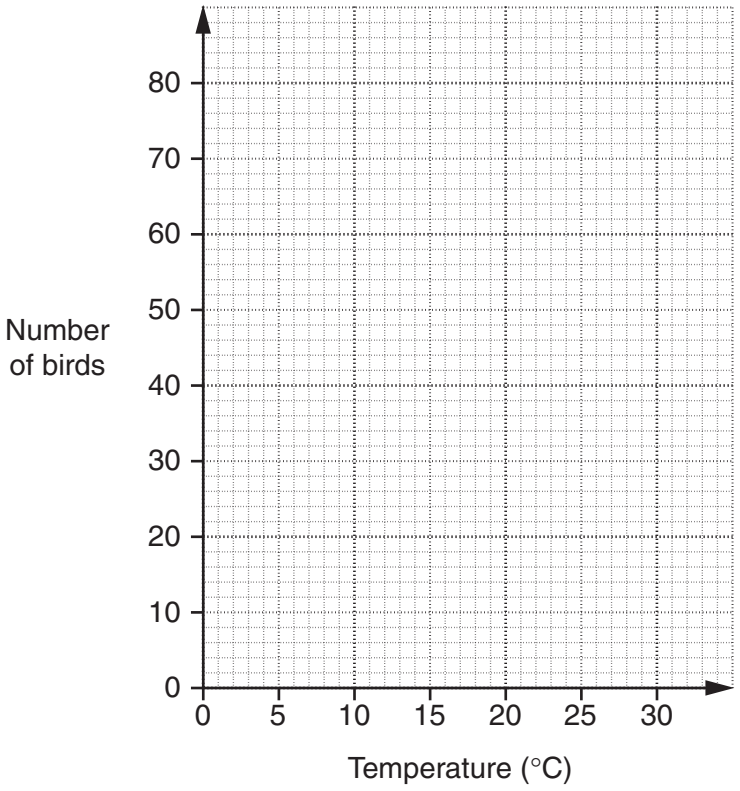
17 Jackie and Terence are keen bird watchers.

They recorded the number of birds visiting their bird table in one hour on six occasions. They also recorded the temperature.

Their results are listed below.

Temperature (°C)	5	10	15	20	25	30
Number of birds	70	52	42	26	12	4

(a) Draw a scatter diagram of this information on the grid below.



[2]

(b) (i) Draw a line of best fit on your scatter diagram. [1]

(ii) Estimate the number of birds that might visit the bird table when the temperature is 17°C.

(ii) _____ [1]

18 (a) (i) Showing the approximations you use, estimate the answer to

$$\frac{5.8}{8.1 - 4.9}.$$

.....

.....

(a)(i) _____[2]

(ii) Use your calculator to work out

$$\frac{5.8}{8.1 - 4.9}.$$

Give your answer correct to 2 significant figures.

(ii) _____[2]

(b) Work out the circumference of a circle with diameter 15 cm. Give your answer to the nearest centimetre.

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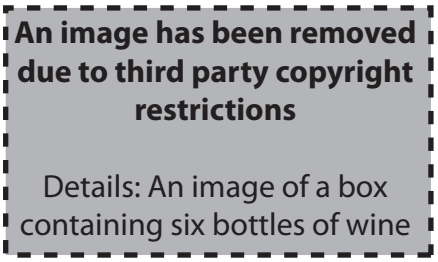
.....

(b) _____cm [3]

19 A box contains 6 bottles of wine.



(a) One bottle of wine weighs w kg.

The box weighs 1 kg less than one bottle of wine.

Show that the total weight, in kilograms, of two boxes, each with six bottles of wine is

$$14w - 2.$$

_____

_____

_____[3]

(b) The total weight of the two boxes and their bottles is 19 kg.

Write down an equation in w and solve it to find the weight of one bottle of wine.

.....

.....

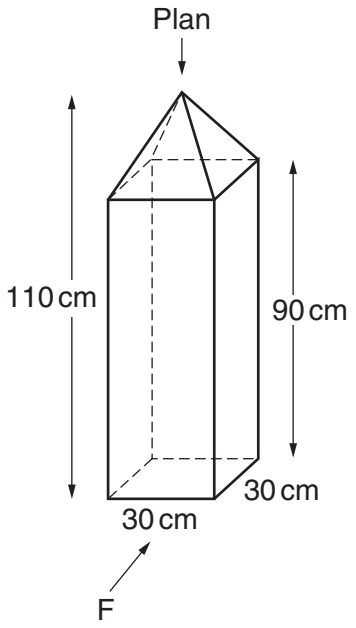
.....

.....

(b) _____ kg [2]

_____

20 A gate-post is a cuboid topped by a pyramid.
The cuboid has a square base of side 30 cm and height 90 cm.
The total height of the gate-post is 110 cm.



Use a scale of 1 cm to 10 cm to draw, on the grids below,

(a) the plan of the gate-post, [2]

(b) the elevation of the gate-post viewed from F. [2]

(a)

(b)

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