OCR
RECOGNISING ACHIEVEMENT

M3

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT)

B273A

MODULE M3 – SECTION A

CUP/T56667

Candidates answer on the question paper

OCR Supplied Materials:
None

Other Materials Required:
- Geometrical instruments
- Tracing paper (optional)

Tuesday 20 January 2009
Morning

Duration: 30 minutes

B273A

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this Section is **25**.
- This document consists of **12** pages. Any blank pages are indicated.

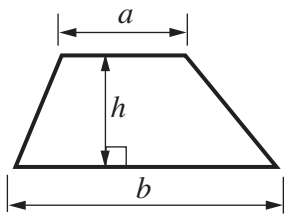
WARNING

No calculator can be used for Section A of this paper

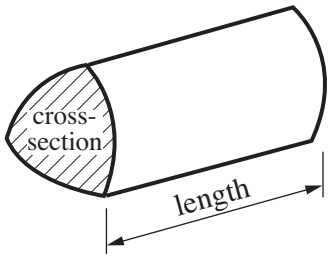
FOR EXAMINER'S USE	
SECTION A	
SECTION B	
TOTAL	

Formulae Sheet

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



Volume of prism = (area of cross-section) × length



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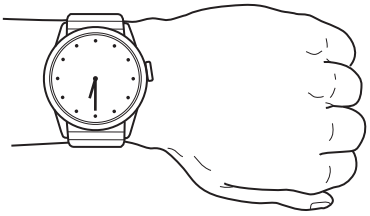
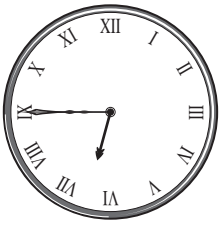
1 One morning, Safiq travels by train to Euston.
Then he goes to meet a friend near Big Ben.



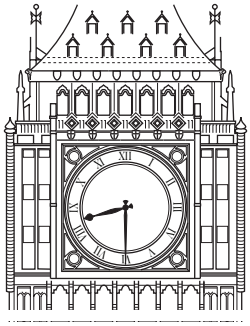
Safiq leaves home.



He arrives at Kings Langley station.

He catches the train to Euston.

The train arrives at Euston.



Safiq meets his friend near Big Ben.

(a) Safiq waits 5 minutes at Kings Langley station for the train to arrive.

At what time does the train arrive?

(a) ..... **[1]**

(b) How many minutes does the train take to reach Euston?

(b) ..... minutes **[1]**

(c) How long after leaving home does Safiq meet his friend?

(c) ..... hours **[1]**

2 Work out.

(a) $12{\cdot}4 \div 4$

(a) ..... **[1]**

(b) $2{\cdot}2 \times 4$

(b) ..... **[1]**

(c) $5{\cdot}12 \times 1000$

(c) ..... **[1]**

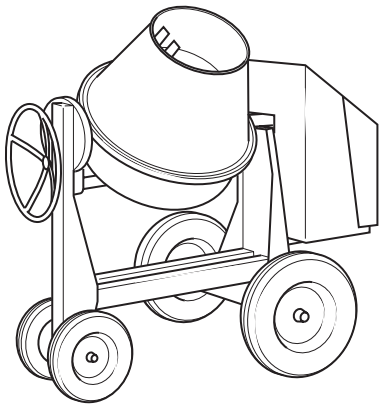
(d) 7^2

(d) ..... **[1]**

3 **(a)** Concrete is a mixture of water, cement, sand and small stones.

(i) A concrete block weighs 200 kg.
Half of this weight is small stones.

What is the weight of small stones in the block?



(a)(i) ..... kg **[1]**

(ii) 15% of concrete by weight is cement.
The block of concrete weighs 200 kg.

What weight of this is cement?

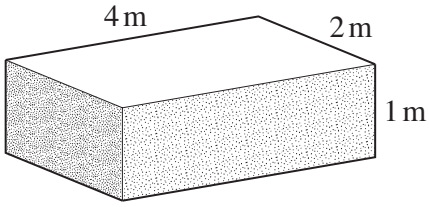
(ii) ..... kg **[2]**

(b) The weight, T tonnes, of a cuboid of concrete is given by this formula.

$T = 2 \times \text{length} \times \text{width} \times \text{height}$

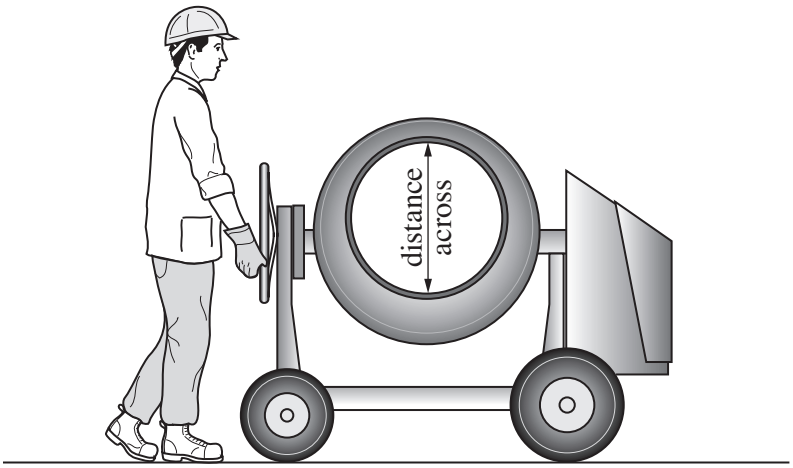
The length, width and height are in metres.
This concrete cuboid has length 4 m, width 2 m and height 1 m.

Use the formula to calculate its weight.



(b) ..... tonnes **[2]**

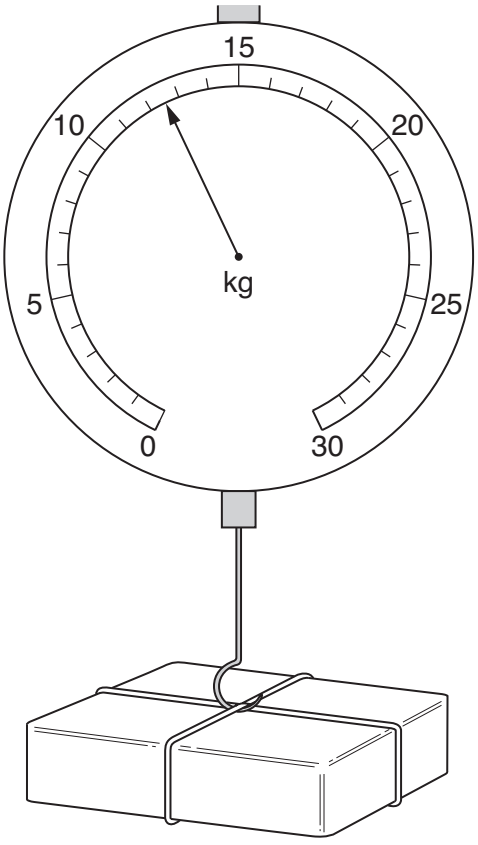
(c) Estimate the distance across this concrete mixer.
Give the units of your answer.



(c) ..... **[2]**

(d) This scale shows the weight of a concrete brick.

What weight does the scale show?

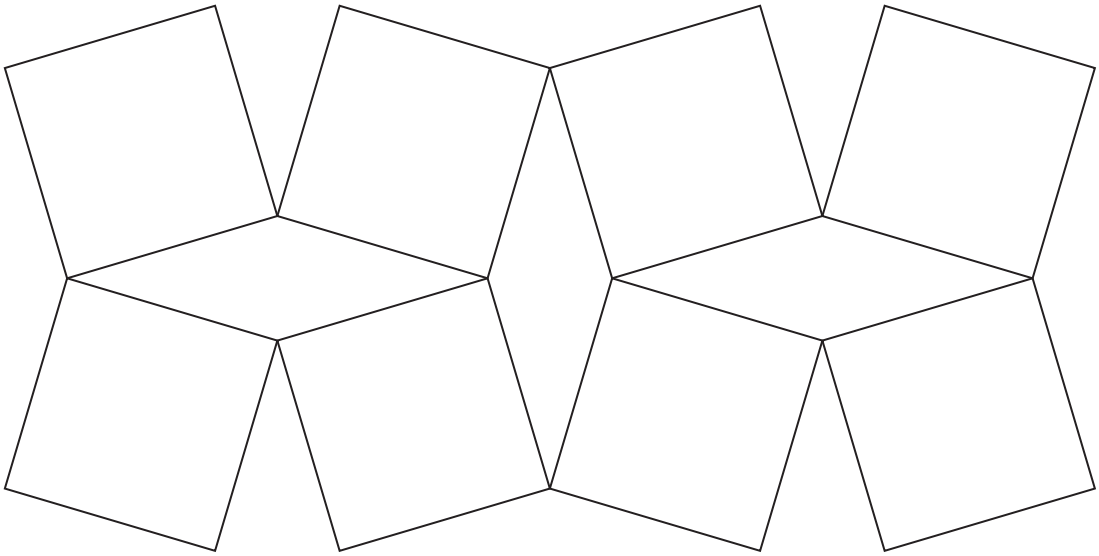


(d) ..... kg **[1]**

(e) Here is part of a pattern made from concrete slabs.

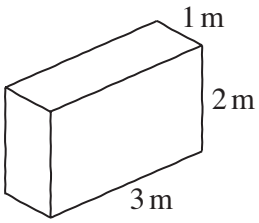
Mark and label clearly

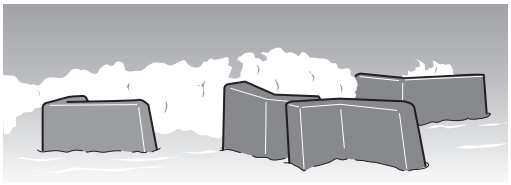
- an acute angle (A),
- a right angle (R),
- an obtuse angle (O).



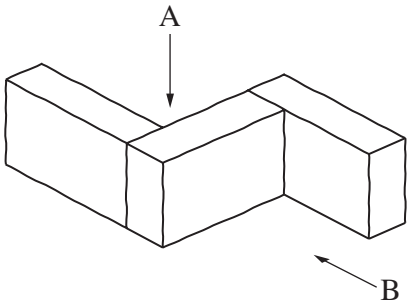
[2]

(f) Wave breaks are made from three of these concrete blocks.





This drawing shows a wave break.



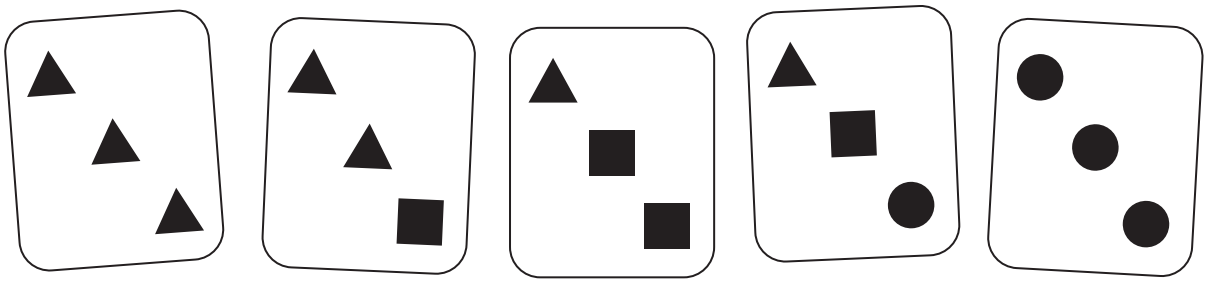
On the centimetre squared grids below, draw the view from above (A) and from the side (B). Use a scale of 1 cm to represent 1 m.

From A

From B

[3]

4 Mary takes one of these five cards without looking.



Work out the probability that her card

(a) has three triangles on it,

(a) ..... **[1]**

(b) has three symbols the same on it.

(b) ..... **[1]**

TURN OVER FOR QUESTION 5

5 Work out.

(a) $2 + 3 \times 4 =$ .....

[1]

(b) $(3 \times 3) - (4 \times 2) =$ .....

[2]

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