Write your name here

Surname	Other names

Edexcel GCSE

Centre Number	Candidate Number

Mathematics B

Unit 3: Number, Algebra, Geometry 2 (Calculator)

Foundation Tier

Sample Assessment Material
Time: 1 hour 30 minutes

Paper Reference
5MB3/3F

You must have:
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may be used**.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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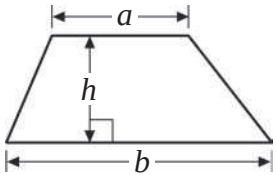
GCSE Mathematics 2MB01

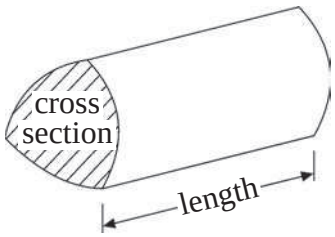
Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

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



Volume of prism = area of cross section × length

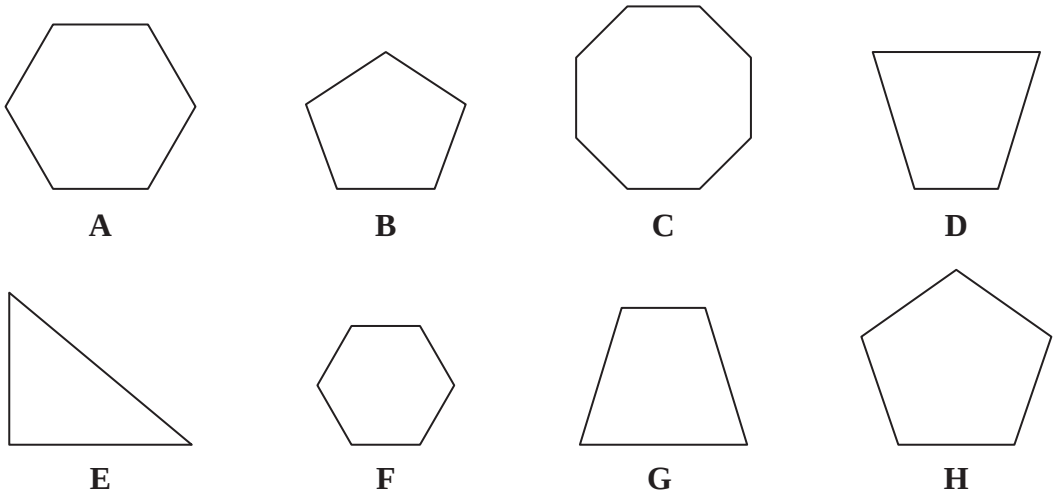


Answer ALL questions.

Write all your answers in the spaces provided.

You must write down all stages in your working.

1 Here are 8 polygons.



(a) Write down the mathematical name for shape **A**.

(1)

.....

(b) Write down the letter of the shape that is an octagon.

(1)

.....

(c) Write down the letters of the pair of congruent shapes.

(1)

..... and .....

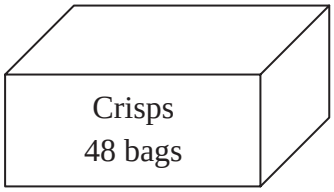
(Total for Question 1 = 3 marks)

2 Jan bought 3 boxes of Salt ‘n’ Vinegar crisps and 2 boxes of Ready Salted crisps to sell at the Year 11 disco.

There are 48 bags of crisps in each box.

At the end of the disco there were 25 bags of crisps left.

How many bags of crisps were sold at the disco?



..... Bags

(Total for Question 2 = 3 marks)

3 Tom wants to clean the upstairs windows of his house.

He decides to buy a ladder.

The ladder has to reach exactly 3.8 metres up the wall of the house.

To be safe, the ladder has to be at an angle of 72° to the ground.

What length of ladder should Tom buy?

.....

(Total for Question 3 = 4 marks)

***4** Ben buys 10 trays of bottled water for £5.99 a tray.

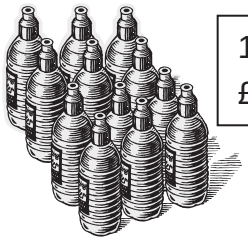
Each tray holds 12 bottles of water.

Ben goes to a car boot sale to sell his water.

In the morning he sells 80 bottles at 99p each.

In the afternoon he reduces the price and
he sells all the bottles he has left for 75p each.

How much profit or loss does he make?



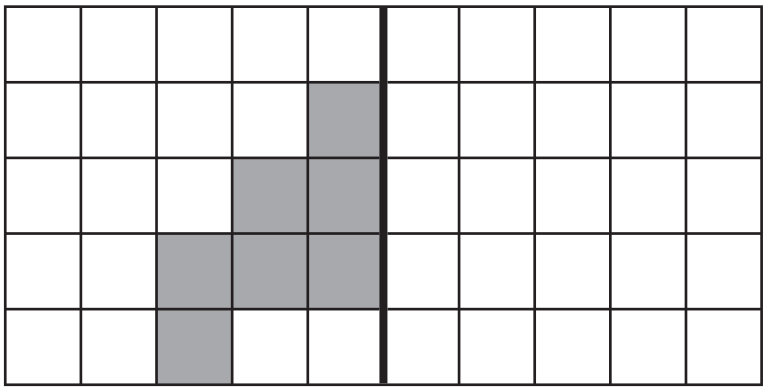
12 bottles
£5.99 a tray

£ .....

(Total for Question 4 = 5 marks)

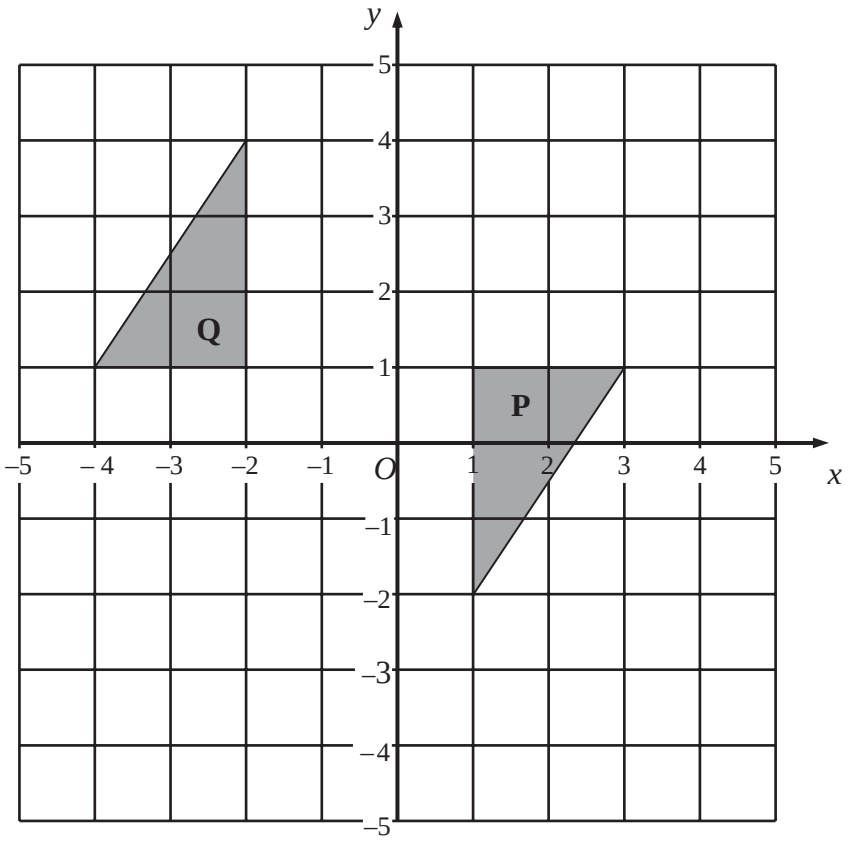
5 (a) Reflect the shaded shape in the mirror line.

(1)



(b) Describe the single transformation that moves shape **P** to shape **Q**.

(2)



.....

(Total for Question 5 = 3 marks)

6 Jemilla goes swimming.

She swims 64 lengths of a swimming pool.

Each length is 25 m long.

(a) Work out how far Jemilla swims.

Give your answer in kilometres.

(3)

..... kilometres

The swimming pool is 25 m long by 10 m wide by 2.5 m deep.

(b) How many litres of water does it contain?

(3)

..... *l*

(Total for Question 6 = 6 marks)

7 Erica and Luke use this rule to work out their pay.

Pay = number of hours worked × rate of pay per hour

Erica worked for 32 hours.
Her rate of pay per hour was £5.20

(a) What was Erica's pay?

(2)

£ .....

Luke's pay was £172.50
His rate of pay per hour was £5.75

(b) How many hours did Luke work?

(2)

..... hours

(Total for Question 7 = 4 marks)

8 This is the meter reading card for Mr Hassan's use of electricity.

Electricity Meter Reading

Lightning Electric Co

Date of meter reading	Reading in units				
3 April 2012	0	8	9	6	3
30 June 2012	1	0	6	2	5

Here is part of Mr Hassan's bill.

Electricity Bill

Lightning Electric Co

2 July 2012

Current rates

Standing charge	15.07p for each day
Cost per unit	11.85p

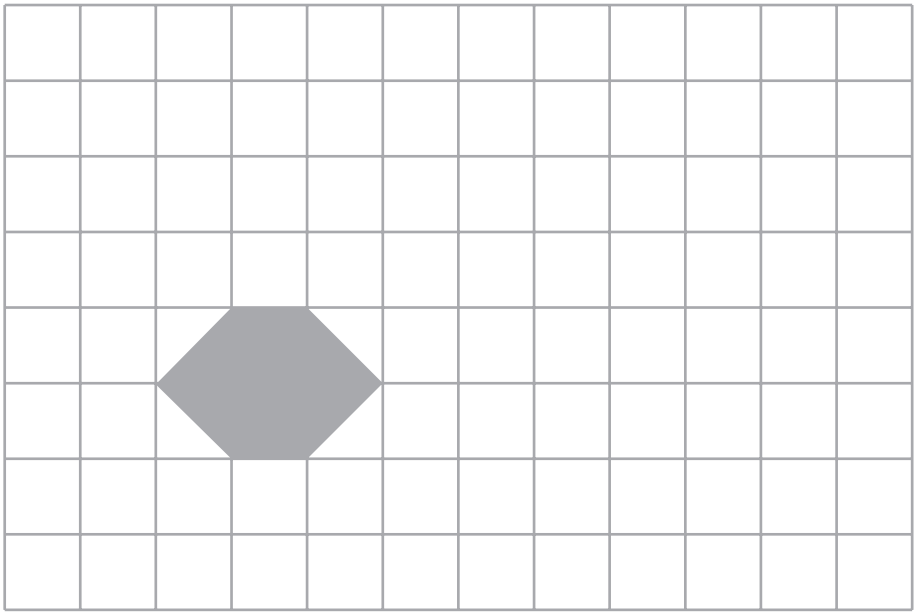
Find the total cost of Mr Hassan's electricity bill.

£ .....

(Total for Question 8 = 6 marks)

9 Harry buys some tiles so that he can tile his bathroom floor.
One of the tiles is drawn on the grid below.

On the grid below show how the tiles will tessellate.
You should draw at least 6 tiles.



(Total for Question 9 = 2 marks)

10 (a) Solve $4x = 12$

(1)

$x =$ .....

(b) Solve $y - 7 = 11$

(1)

$y =$ .....

(Total for Question 10 = 2 marks)

11 In a school there are 220 pupils in Year 9.
120 of these pupils are girls.

What fraction of the 220 pupils are boys?

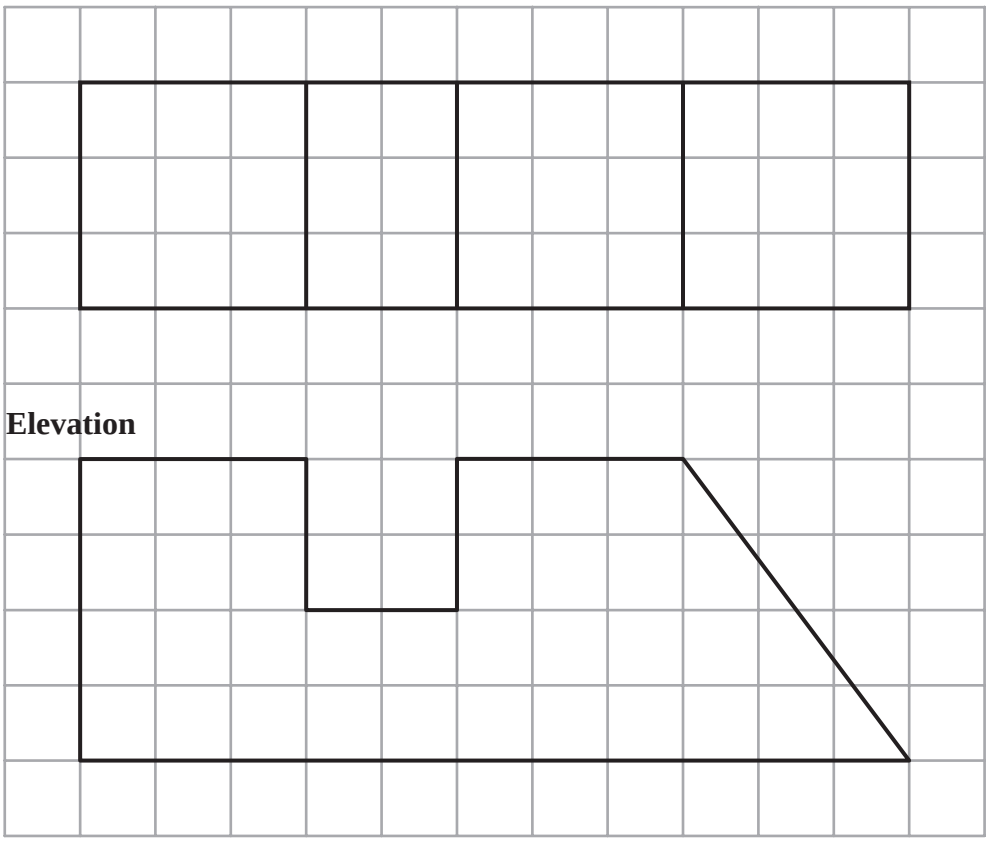
Give your fraction in its simplest form.

.....

(Total for Question 11 = 2 marks)

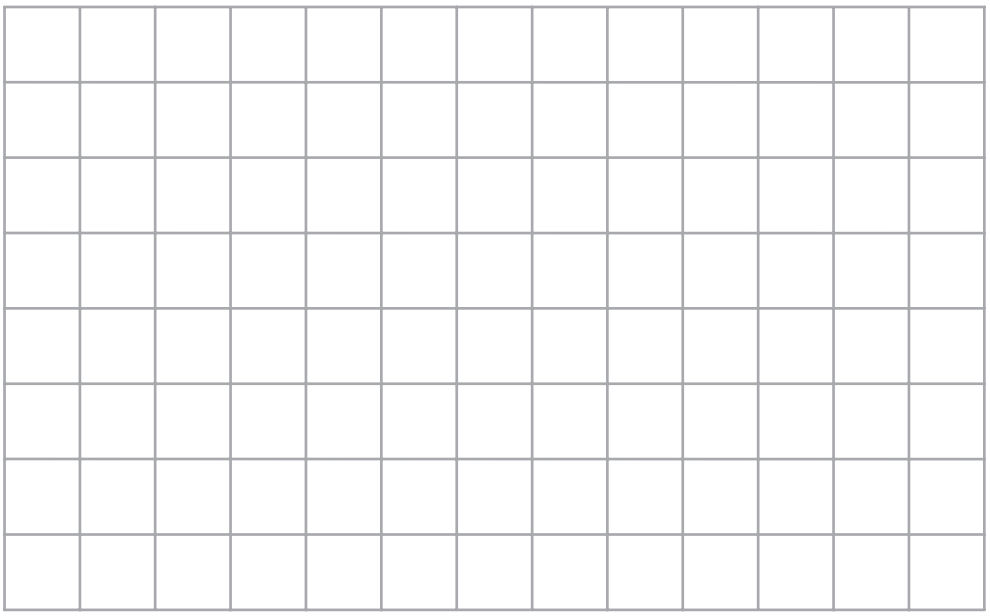
12 Here are the plan and front elevation of a prism.
The front elevation shows the cross section of the prism.

Plan



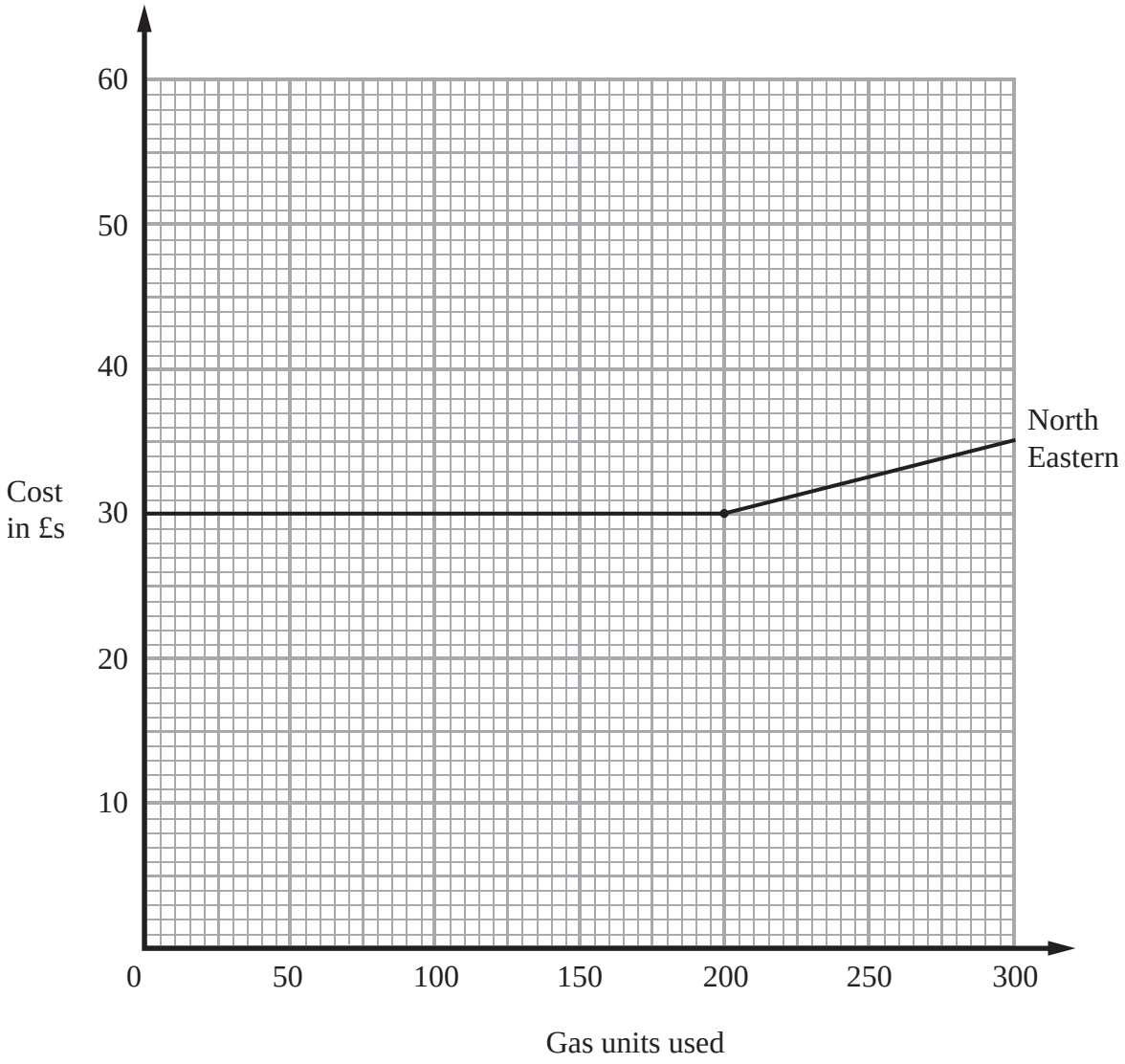
Front Elevation

On the grid below draw a side elevation of the prism.



(Total for Question 12 = 3 marks)

***13** The graph shows the cost of buying gas from the North Eastern Gas Company.



Here are the costs for buying gas from three Gas Companies.

North Eastern	Basic cost £30	First 200 units free then each unit costs 5p
Pacific	Every unit costs 20p	
East Anglian	Basic cost £10	Every unit costs 10p

Erica uses between 100 and 200 units each month.

Explain which would be the cheapest for her to use.
Show clearly how you got your answer.

(Total for Question 13 = 5 marks)

***14** Mrs White wants to buy a new washing machine.

Three shops sell the washing machine she wants.

Clean Machines	**Electrics**	**Wash 'n' Go**
Washing machine	**Washing machine**	**Washing machine**
Buy now pay later!	$\frac{1}{4}$ off the usual price	£280
£50 deposit plus	of	plus
10 equal payments of £27	£420	VAT at $17\frac{1}{2}$%

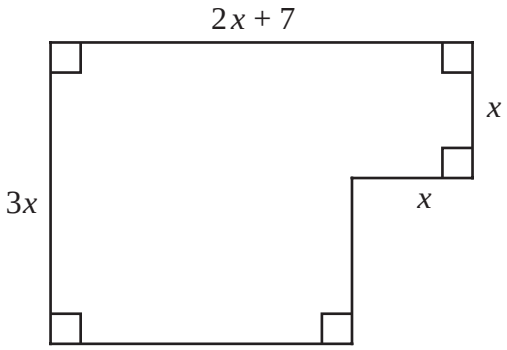
Mrs White wants to buy the cheapest one.
She decides to buy her washing machine from one of these 3 shops.

From which of these shops should she buy her washing machine?
You must show how you decided on your answer.

.....

(Total for Question 14 = 6 marks)

15 The perimeter of this shape is 22 cm.



All measurements are in centimetres

Find the area.

..... cm²

(Total for Question 15 = 5 marks)

16 Use your calculator to work out

$$\frac{\sqrt{6700} - 2.38^2}{3.6^2 + 5.71}$$

You must give your answer as a decimal.
Give your answer to three significant figures.

.....

(Total for Question 16 = 3 marks)

17 Jason earns £50 000 a year.

He has to pay income tax.

He is allowed to earn £6500 before paying tax.
He pays 20% tax on the next £37 400.
He then pays 40% tax on the rest.

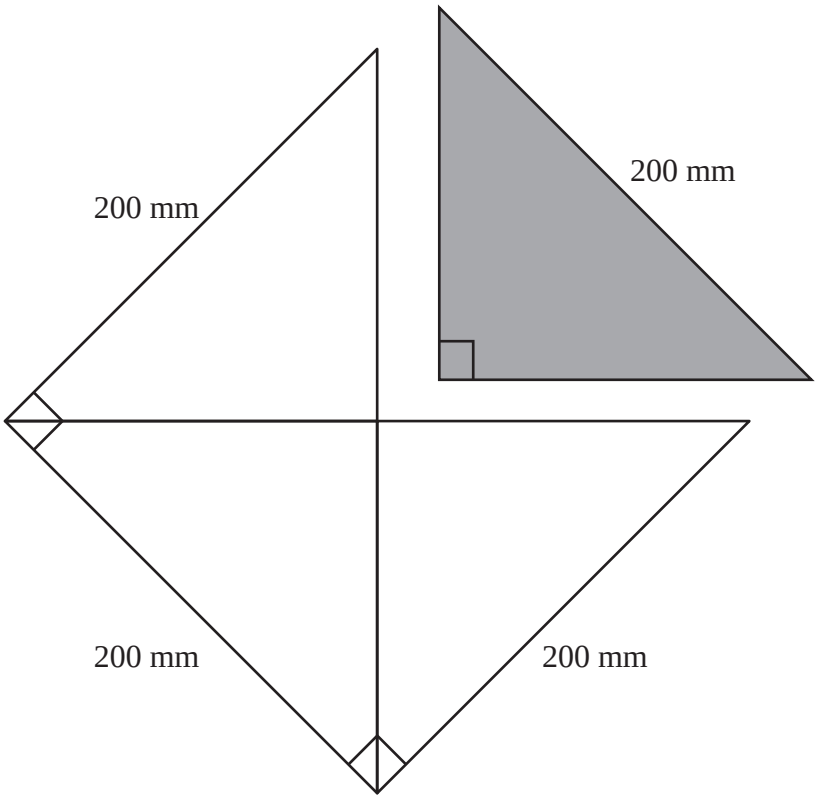
His employer deducts the income tax each month.

How much income tax does Jason get deducted each month?

£ .....

(Total for Question 17 = 5 marks)

18 The shaded isosceles right angled triangle is cut out of a large square of side 200 mm.



The squares are cut out of an A0 sized rectangular piece of paper which has dimensions 1189 mm by 841 mm.

More triangles are cut from the paper that is left after the squares have been cut out.

What is the greatest total number of these triangles that can be cut out of the large, rectangular sheet of paper?

..... triangles

(Total for Question 18 = 5 marks)

19 $P = 3a + 2b^2$

(a) Find the value of P when $a = 5$ and $b = -4$

(2)

.....

(b) Make a the subject of the formula.

(2)

.....

(Total for Question 19 = 4 marks)

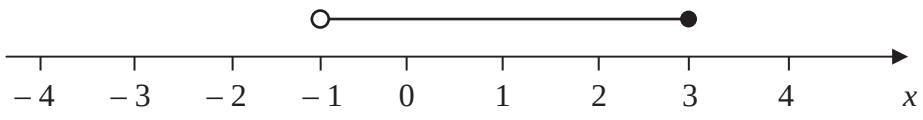
20 $-3 \leqslant n < 2$

n is an integer.

(a) Write down all the possible values of n.

(2)

.....



(b) Write down the inequalities represented on the number line.

(2)

.....

(Total for Question 20 = 4 marks)

TOTAL FOR PAPER = 80 MARKS