

Please write clearly in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

Past Paper
Website
Home



F

Foundation Tier Paper 3 Calculator

Tuesday 11 June 2019

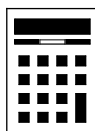
Morning

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26	
TOTAL	

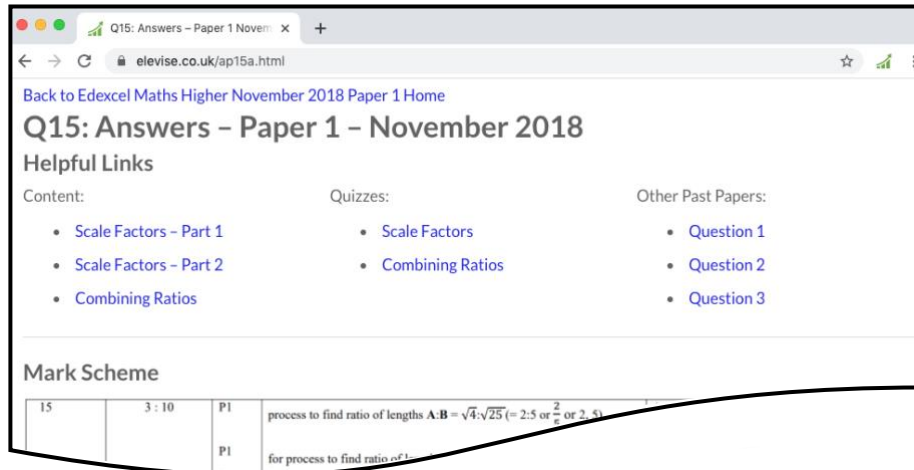
Advice

In all calculations, show clearly how you work out your answer.



How the Past Papers work

Every past paper question has a corresponding webpage that has the mark scheme and worked solutions for that particular question. There are also helpful links to content for the concepts used to answer the question, quizzes that you can use to try some of the concepts and similar past paper questions. An example of a webpage for a question is given below:



Q15: Answers - Paper 1 - November 2018

Helpful Links

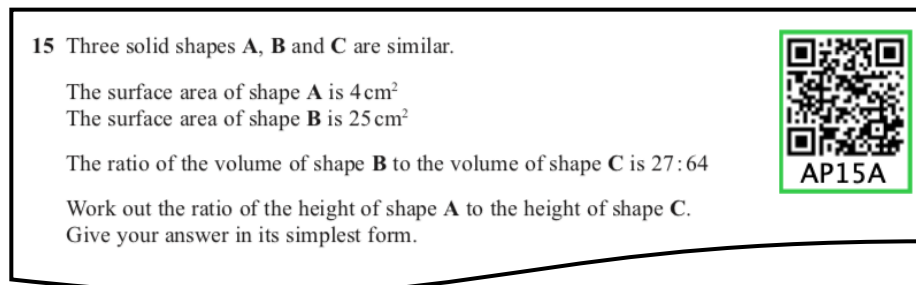
Content:	Quizzes:	Other Past Papers:
<ul style="list-style-type: none">Scale Factors - Part 1Scale Factors - Part 2Combining Ratios	<ul style="list-style-type: none">Scale FactorsCombining Ratios	<ul style="list-style-type: none">Question 1Question 2Question 3

Mark Scheme

Q	Content	Mark	Process
15	3 : 10	P1	process to find ratio of lengths A:B = $\sqrt{4 \cdot \sqrt{25}} = 2.5$ or $\frac{2}{5}$
		P1	for process to find ratio of 1:

How to get to the webpage

Every past paper question has a QR code next to it, such as:




15 Three solid shapes A, B and C are similar.

The surface area of shape A is 4 cm^2
The surface area of shape B is 25 cm^2

The ratio of the volume of shape B to the volume of shape C is 27 : 64

Work out the ratio of the height of shape A to the height of shape C.
Give your answer in its simplest form.



AP15A

You can get to the corresponding webpage in 3 different ways:

- 1) Scanning the QR code with the camera on a smart phone or tablet.
- 2) Typing the code that is underneath the QR code at the end of www.elewise.co.uk/. For this question, the code is AP15A, so you would type www.elewise.co.uk/AP15A into the address bar to obtain the webpage. If you would like to see the question rather than the answers, you change the A at the end of the code to a Q; you would type www.elewise.co.uk/AP15Q
- 3) Clicking on the QR code if you are viewing the past paper as a PDF or on a web browser.

www.elewise.co.uk



Answer **all** questions in the spaces provided

- 1 Circle the value of the digit 2 in the answer to $5200 \div 10$

[1 mark]



2

20

200

2000

- 2 Solve $x - 8 = 5$

Circle your answer.

[1 mark]

 $x = -13$ $x = -3$ $x = 3$ $x = 13$

- 3 Circle the fraction that is equal to $2\frac{1}{4}$

[1 mark]

 $\frac{7}{4}$ $\frac{9}{4}$ $\frac{21}{4}$ $\frac{25}{4}$ 

- 4 Circle the expression which means x divided by y

[1 mark]



$$\frac{x}{y}$$

$$\frac{y}{x}$$

$$\frac{1}{xy}$$

$$\frac{1}{x+y}$$

- 5 Put these numbers in order from smallest to largest.

$$\frac{31}{40}$$

$$\frac{3}{4}$$

$$\frac{7}{10}$$

0.725

[2 marks]



Smallest _____

Largest _____

Turn over ►





Do not write
outside the
box

- 6** Josh downloads album A.
A has 11 tracks.
Each track on A costs the same.
The total cost of downloading A is £8.80

Josh also downloads album B.
B has 14 tracks.

- 6 (a)** Work out the total cost of downloading B.
Assume each track costs the same as a track on A.

[3 marks]

Answer £ _____



- 6 (b) In fact, compared to the cost of each track on A
the cost of 6 tracks on B is **more** by 5p each
the cost of 8 tracks on B is **less** by 5p each.

What does this tell you about your answer to part (a)?

Tick **one** box.

The total cost is **less** than my answer to part (a)

The total cost is **more** than my answer to part (a)

The total cost is **the same** as my answer to part (a)

Give a reason for your decision.

[2 marks]

Turn over for the next question

Turn over ►



7

The pictogram shows information about the houses in a street.
Each house has 3, 4 or 5 bedrooms.



Do not write
outside the
box

Key:  represents 2 houses

3-bedroom houses	
4-bedroom houses	
5-bedroom houses	

In total, how many bedrooms do these houses have?

[3 marks]

Answer _____





Do not write
outside the
box

8 Four positive whole numbers add up to 84
One of the numbers is a multiple of 17
The other three numbers are equal.
What are the four numbers?

[3 marks]

Answer _____

Turn over for the next question

6

Turn over ►



9

Jim wants to buy 10 rolls of wallpaper.

He sees these prices.

Wallpaper	
Single roll	£12.50
Pack of 3 rolls	£34.50
Pack of 5 rolls	£58.75



*Do not write
outside the
box*

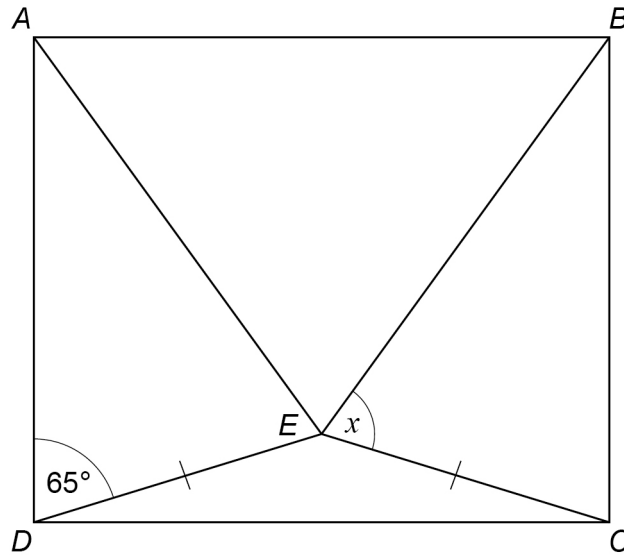
What is the cheapest price for 10 rolls?

[4 marks]

Answer £ _____



10

In rectangle $ABCD$ triangle ABE is equilateraltriangle CDE is isosceles, with $CE = DE$ Not drawn
accurately

KP10A

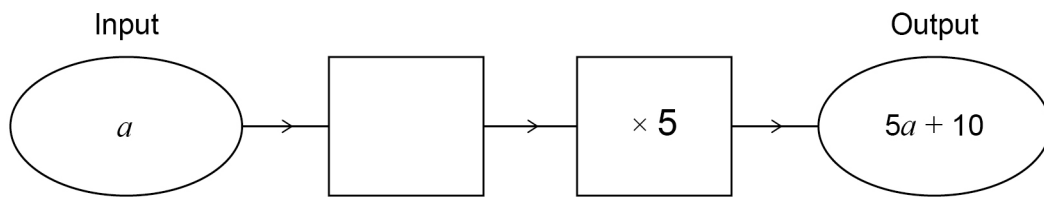
[4 marks]

Work out the size of angle x .

Answer _____ degrees



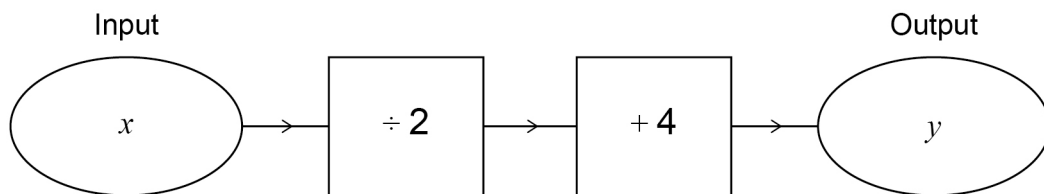
11 (a) Complete the number machine.



[1 mark]



11 (b) Write down the output y in terms of x .



[1 mark]

Answer _____



- 12 The first four triangular numbers are 1, 3, 6, 10
Circle the next triangular number.

[1 mark]



14

15

16

19

- 13 Write down **all** the prime numbers between 40 and 50

[2 marks]



Answer _____

Turn over for the next question

Turn over ►



14

In this question use

1 cubic foot = 6.23 gallons

1 cubic foot = 0.028 cubic metres

Convert 3115 gallons into cubic metres.

[3 marks]



Answer _____ m³

15 Circle the correct statement.

[1 mark]



$$\frac{1}{3} \leq 30\%$$

$$\frac{1}{3} = 30\%$$

$$\frac{1}{3} < 30\%$$

$$\frac{1}{3} \neq 30\%$$

16 Which shape **must** have rotational symmetry?
Circle your answer.

[1 mark]



isosceles triangle

trapezium

kite

parallelogram

Turn over for the next question



- 17** A shop sells ice creams.
Each ice cream has two scoops.



The possible flavours are vanilla (V), strawberry (S), chocolate (C) and mint (M).
The two scoops can be the same flavour or different flavours.

- 17 (a)** List **all** the possible options for the two scoops.

[2 marks]

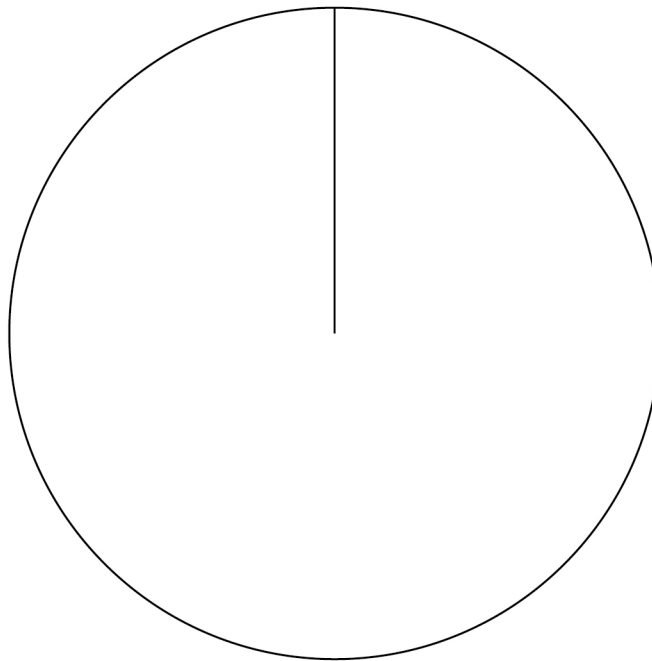


- 17 (b)** In one hour the shop sells 180 scoops of ice cream.
The number of scoops of each flavour is shown in the table.

Flavour	Vanilla	Strawberry	Chocolate	Mint
Number of scoops	45	75	50	10

Complete the pie chart to represent the data.

[4 marks]

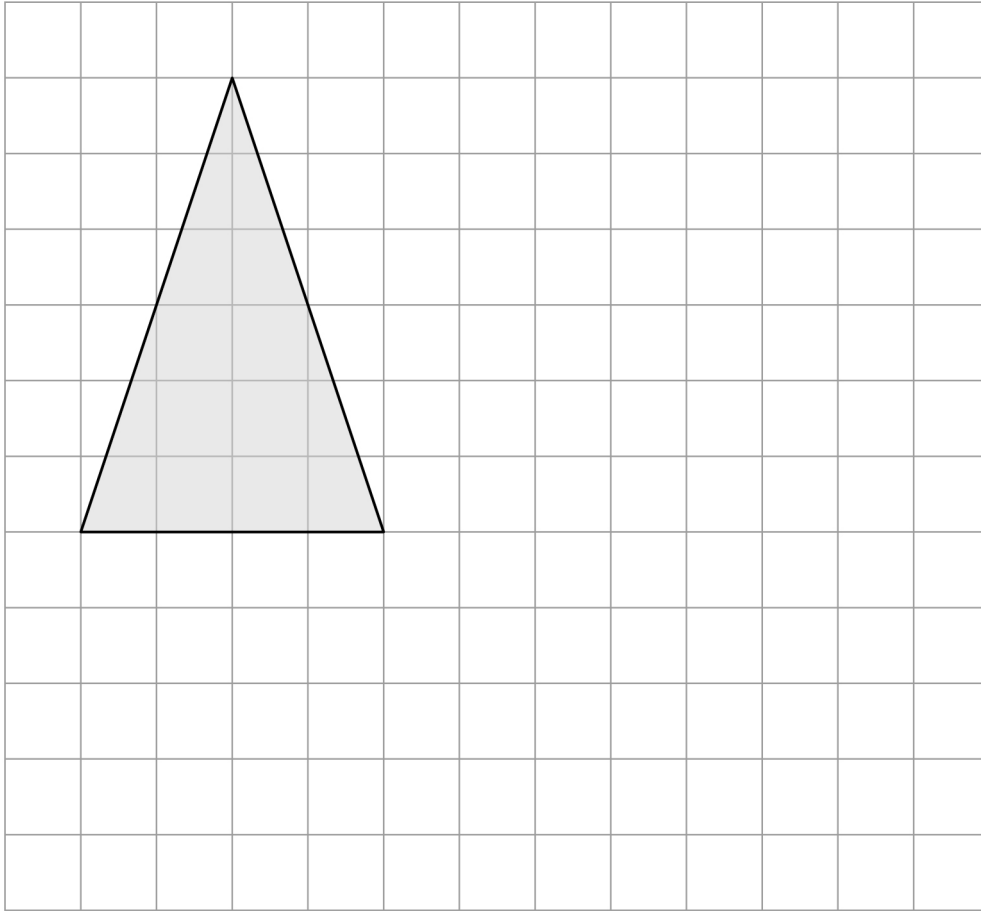




18

On the grid, draw an enlargement of the triangle with scale factor $\frac{1}{2}$

[2 marks]



19 (a) Simplify fully $3a^2 + 7a + 3 - a^2 + 8a - 4$

[3 marks]



Answer _____

19 (b) Factorise fully $24y^2 - 20y$

[2 marks]

Answer _____

20 Solve $x^2 = 196$

[2 marks]



Answer _____



21

To the nearest pound, Jon has £9

To the nearest 50p, Ellie has £6.50

Work out the maximum possible total amount of money.

[3 marks]



Answer £ _____



22 Here is a formula.

$$T = n^2 - \frac{12}{n}$$



22 (a) Work out T when $n = 5$

[1 mark]

Answer _____

22 (b) Why is T **always** positive when n is negative?

[2 marks]





23 In one hour a machine can make
600 nuts
or
720 bolts.

At 3 pm the machine starts working.
It makes 900 nuts and then changes to making bolts.

How many **bolts** will the machine make by 8 pm?

[4 marks]

Answer _____

24

Two solids, J and K, have the same density.

Complete the table.

Include units in your answers.



[3 marks]

Do not write
outside the
box

	J	K
Mass	48 g	78 g
Volume	8 cm ³	
Density		

Turn over for the next question

7

Turn over ►



25

Towns P , Q and R are connected by roads PQ , PR and QR .

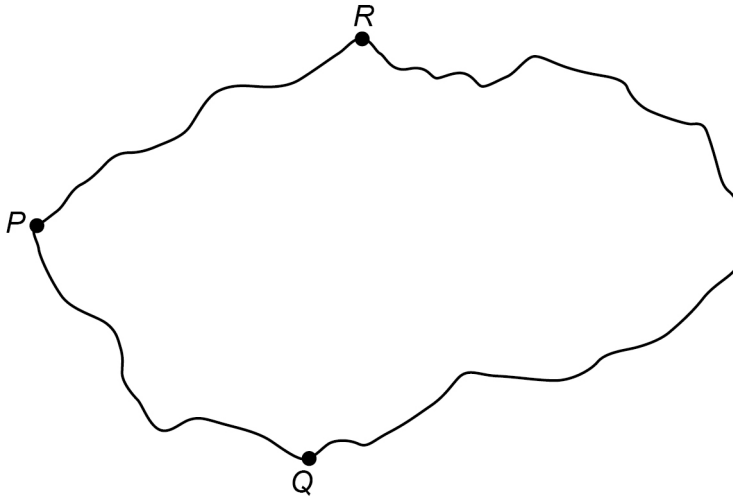
PR is 10 km longer than PQ .

QR is twice as long as PR .

The total length of the three roads is 170 km



Not drawn
accurately



Work out the length of PQ .

[4 marks]

Answer _____ km



26

Mia wants to borrow £6000 and repay it, with interest, after two years.
She sees two offers for loans.

**Offer 1**

Compound interest
3% per year

Offer 2

Compound interest
First year 1%
Second year 5%

Mia says,

“I will pay back the same amount because the average of 1% and 5% is 3%”

Is she correct?

You **must** show your working.

[3 marks]

Turn over for the next question

7

Turn over ►



27 Here are two sets of numbers, A and B.

Set A

200	160
104	100

Set B

270	400	483
300	x	

mean of Set A : mean of Set B = 3 : 8

Work out the value of x .

[4 marks]



Answer _____



28

A straight line

has gradient 4

and

passes through the point (5, 23)



Work out the equation of the line.

Give your answer in the form $y = mx + c$ **[3 marks]**

Answer _____

Turn over for the next question

7**Turn over ►**

29 Two sides of a triangle have lengths 13 cm and 27 cm

Which of these is a **possible** length of the other side?

Circle your answer.

[1 mark]



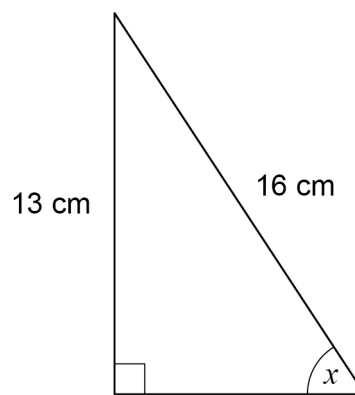
13 cm

14 cm

27 cm

40 cm

30 Here is a right-angled triangle.



Not drawn
accurately

Use trigonometry to work out the size of angle x .



[2 marks]

Answer _____ degrees

END OF QUESTIONS

