AUTUMN 2016 – GCSE 9-1

MOCK FOUNDATION PAPER 3

ALTERNATIVE VERSION

This version was kindly put together by Graham Cumming at Edexcel and some of the questions have been adapted to "strip out" the sums as part of an exercise I did with my year 9's looking at how they can approach the questions without focusing on the sums that are required.

Please note that **not all of the questions have been changed**!!

I wrote about it here -> **BLOG POST**

Mel – JustMaths

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.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

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.*
- Some questions (*) revised after comments from Just Maths

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.

1.   Write 41 675 correct to the nearest 1000

....
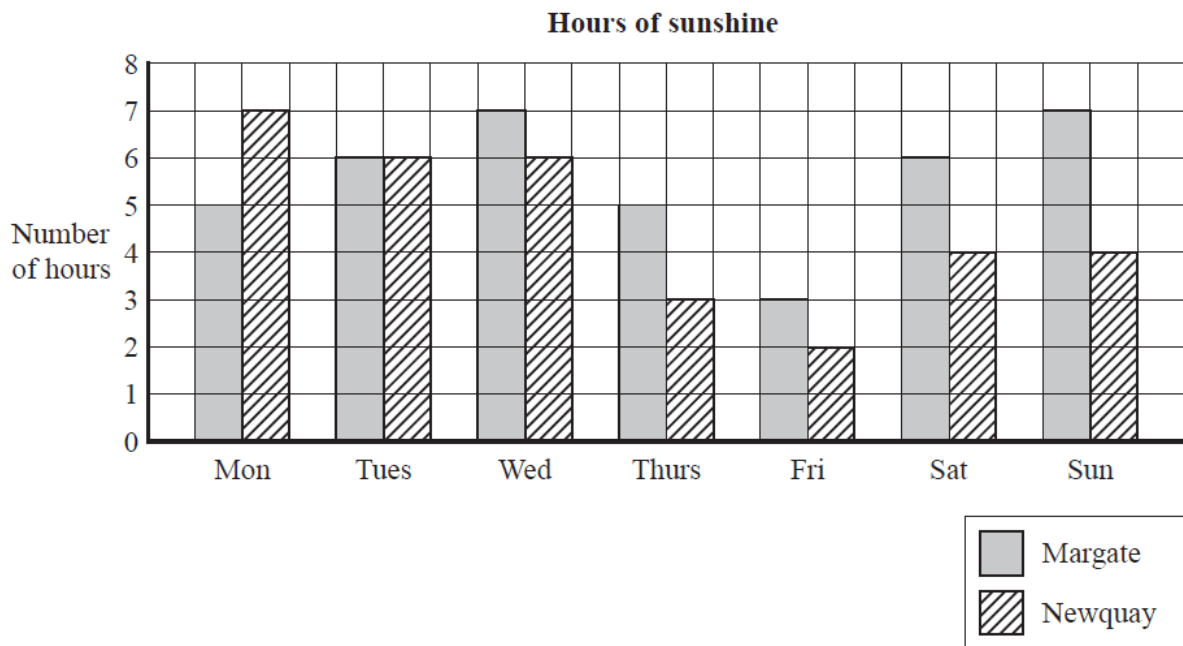
(Total for Question 1 is 1 mark)

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2.   Write the following numbers in order of size.
Start with the smallest number.

3.25   3.2   3.05   3.205

....

(Total for Question 2 is 1 mark)

3. The bar chart shows the number of hours of sunshine each day last week in Margate and in Newquay.

Hours of sunshine

(a) On how many days did Newquay have less than 5 hours of sunshine?

.... days

(1)

In total, Margate had more hours of sunshine than Newquay last week.

(b) How many more?

.... hours

(2)

(Total for Question 3 is 3 marks)

4. Packs of batteries cost £2.85 each.
Ben has £45 to spend on batteries.

Ben buys as many packs of batteries as he can.
Work out how much change he should get from £45.

£ ....

(Total for Question 4 is 3 marks)

5. Here is a sequence of patterns made from grey squares and white squares.

pattern number 1   pattern number 2   pattern number 3

(*a*) In the space below, draw pattern number 4.

(1)

(*b*) Work out the total number of squares needed to make pattern number 7

....

(2)

Aqsa says,

"The total number of squares needed to make pattern number 20 is double the total number of squares needed to make pattern number 10"

(*c*) Is Aqsa correct?
    Give a reason for your answer.

....

....

(2)

(Total for Question 5 is 5 marks)

*6. Jim says,

"You can add two different prime numbers and the answer will be a square number."

Give an example to show Jim is correct.

....

....

(Total for Question 6 is 2 marks)

7. Matthew has eight cards.
There is a number on each card.

| 3 | 1 | 2 | 3 | 6 | 8 | 7 | 2 |

(*a*) Work out the range of the numbers on the cards.

....

(1)

(*b*) Work out the median of the numbers on the cards.

....

(2)

(Total for Question 7 is 3 marks)

8. There are 375 pupils at a school.
195 of the pupils are boys.

$\dfrac{3}{5}$ of the boys walk to school.

$\dfrac{2}{3}$ of the girls walk to school.

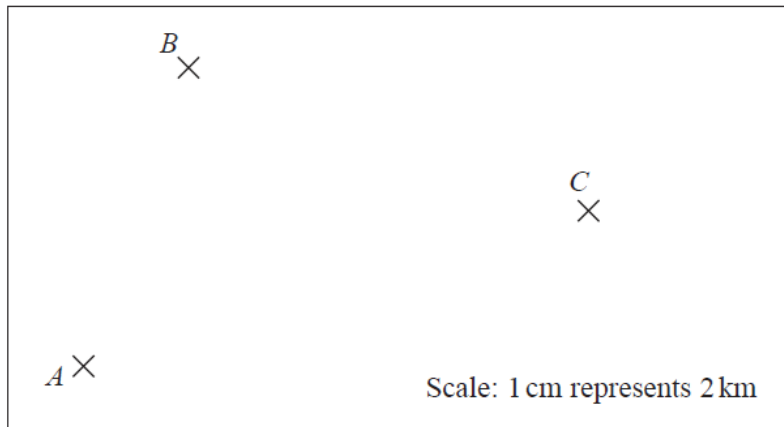Work out how many pupils walk to school.

....

(Total for Question 8 is 3 marks)

_____

*9. There are 20 litres of water in a water container.
A cup holds 210 ml of water.

How many cups can be completely filled using the water in the water container?

....

(Total for Question 9 is 3 marks)

_____

10. This accurate scale drawing shows the positions of three villages, *A*, *B* and *C*.

B
×

C
×

A ×

Scale: 1 cm represents 2 km

Tom walks from *A* to *B*.
He then walks from *B* to *C*.

Amy walks from *A* to *C*.

Tom walks more kilometres than Amy walks.

How many more?

.... km
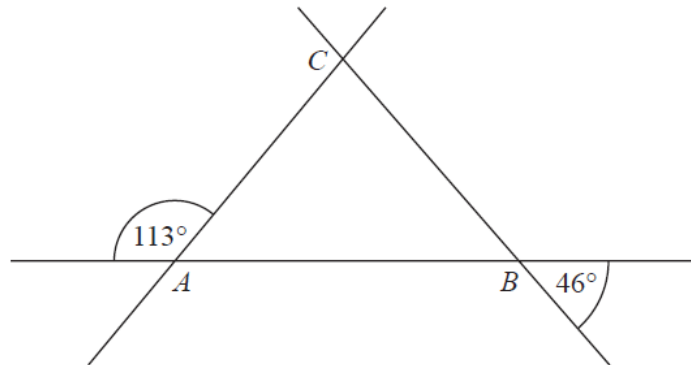
(Total for Question 10 is 3 marks)

11. There are 78 red counters and 52 yellow counters in a bag.

Write the ratio of the number of red counters to the number of yellow counters.
Give your ratio in its simplest form.

....

(Total for Question 11 is 2 marks)

Adapted Autumn 2016 Mocks – GCSE 9-1

12. Here is triangle *ABC* with each of its sides extended.

Show that triangle *ABC* is isosceles.
Give a reason for each stage of your working.

(Total for Question 12 is 4 marks)

13. Here is part of an advert for a driving school.

> 8 out of 10 of the people we teach
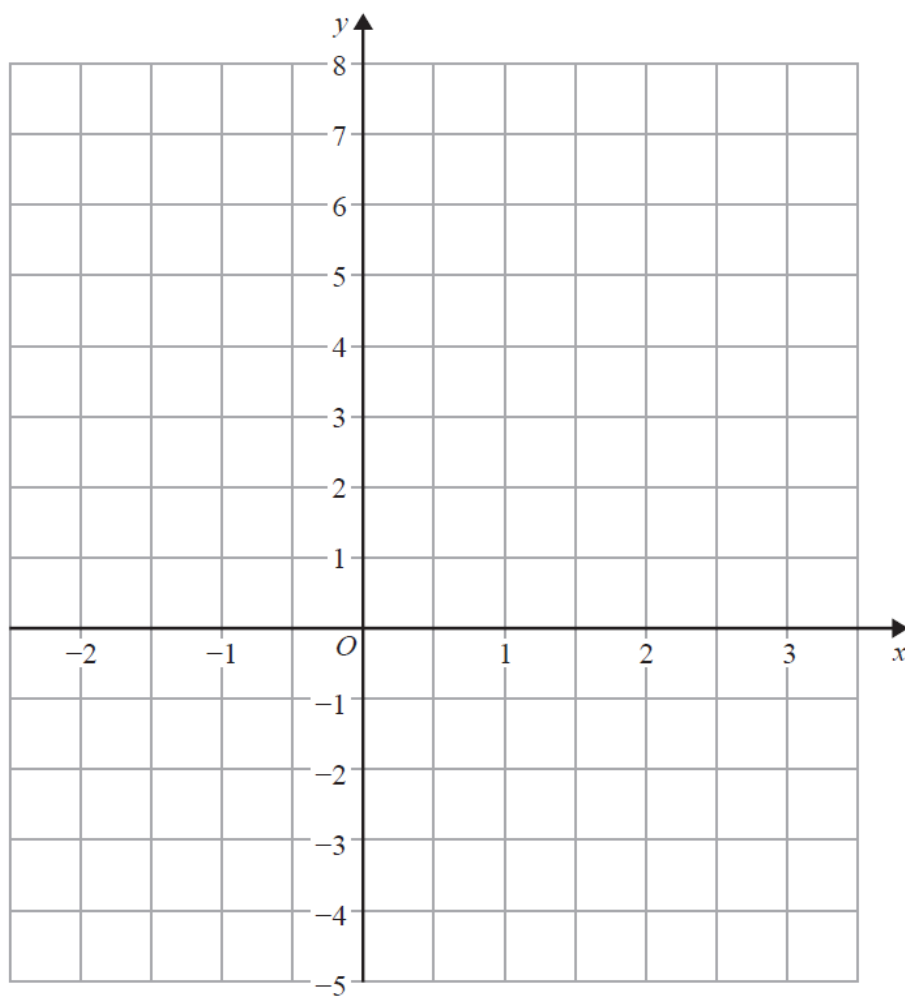> pass the driving test first time

Ali talked to 56 people who had been taught to drive by the driving school.
43 of these people passed the driving test first time.

Does this support what is said in the advert?
You must show how you get your answer.

]

(Total for Question 13 is 3 marks)

_____

14. On the grid, draw the graph of $y = 2x + 1$ for values of x from –2 to 3.

(Total for Question 14 is 3 marks)

15. The nth term of a number sequence is $n^2 + 7$

(a) Find the first three terms of this sequence.

....

(2)

128 is a term of this sequence.

(b) Which term?

....

(1)

(Total for Question 15 is 3 marks)

16. Here are the ingredients needed to make 20 walnut biscuits.

Walnut biscuits

Ingredients to make **20** biscuits

50 g	butter
100 g	caster sugar
40 g	flour
50 g	walnuts
2	egg whites

Liz wants to make 50 walnut biscuits.

Work out the amount of each ingredient she needs.

butter .... g

caster sugar .... g

flour .... g

walnuts …... g

egg whites ....

(Total for Question 16 is 3 marks)

17. (*a*) Simplify $y^3 + y^3$

....

(1)

(*b*) Factorise $m^2 + m$

....

(1)

(*c*) Make *h* the subject of the formula $c = 3h + 5$

....

(2)

(Total for Question 17 is 4 marks)

18. Buses to Ashby leave a bus station every 24 minutes.
Buses to Barford leave the same bus station every 20 minutes.

A bus to Ashby and a bus to Barford both leave the bus station at 7 30 am.

When will a bus to Ashby and a bus to Barford next leave the bus station at the same time?

....

(Total for Question 18 is 3 marks)

19. Amzol thinks that $(x + 5)^2 = x^2 + 25$ for all values of x.

Is Amzol right?
You must show how you get your answer.

(Total for Question 19 is 2 marks)

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*20. Kim, Laura and Molly share £385.

The ratio of the amount of money Kim gets to the amount of money Molly gets is 2 : 5
Kim gets £105 less than Molly gets.
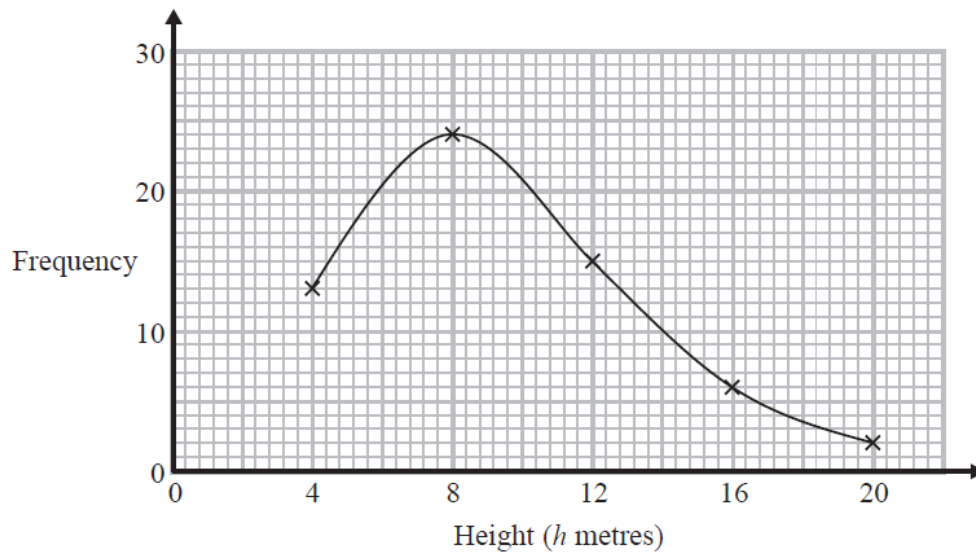
How much does Laura get?

.... %

(Total for Question 20 is 4 marks)

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21. The table shows information about the heights of 60 trees.

Height (*h* metres)	Frequency
$0 < h \leq 4$	13
$4 < h \leq 8$	24
$8 < h \leq 12$	15
$12 < h \leq 16$	6
$16 < h \leq 20$	2

Jacob drew this frequency polygon for the information in the table.
The frequency polygon is **not** correct.

Write down **two** things that are wrong with the frequency polygon.

1..

2..
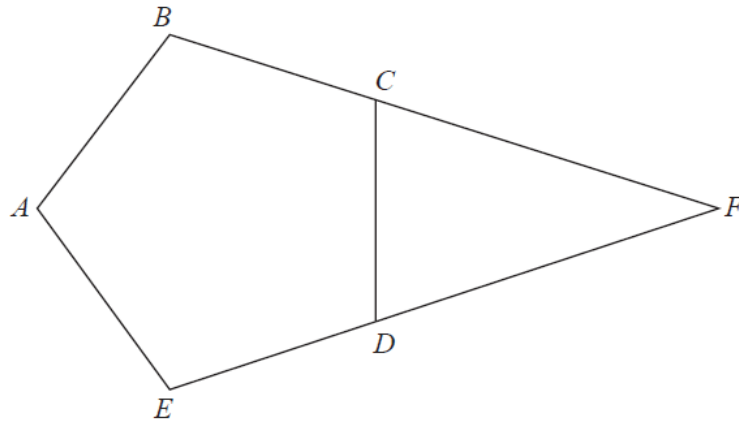
(Total for Question 21 is 2 marks)

22. The price of all rail tickets increased by 5 %.
The price of a rail ticket from London to Ipswich increased by £2.30.

Work out the price of the ticket before the increase.

£ ....
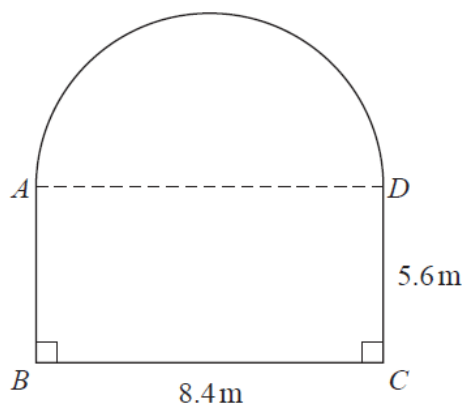
(Total for Question 22 is 2 marks)

_____

23.

ABCDE is a regular pentagon.
BCF and *EDF* are straight lines.

Work out the size of angle *CFD*.
You must show how you get your answer.

.... °

(Total for Question 23 is 3 marks)

24. A garden is in the shape of a rectangle, *ABCD*, and a semicircle.
AD is the diameter of the semicircle.

Carol is going to cover the garden with fertiliser.

A box of fertiliser costs £4.99.
Carol has been told that one box of fertiliser will cover 12 m² of garden.

(*a*) Work out the cost of buying enough fertiliser to cover the garden completely.

£ ....

(5)

Carol finds out that one box of fertiliser will cover more than 12 m² of garden.

(*b*) Explain how this might affect the number of boxes she needs to buy.

....

....

(1)

(Total for Question 24 is 6 marks)

25. Sameena has a round pencil case and a square pencil case.

There are 4 blue pens and 3 red pens in the round pencil case.
There are 3 blue pens and 5 red pens in the square pencil case.

Sameena takes at random one pen out of each pencil case.

(*a*) Complete the probability tree diagram.

round pencil case   square pencil case

blue

blue

red

blue

red

red
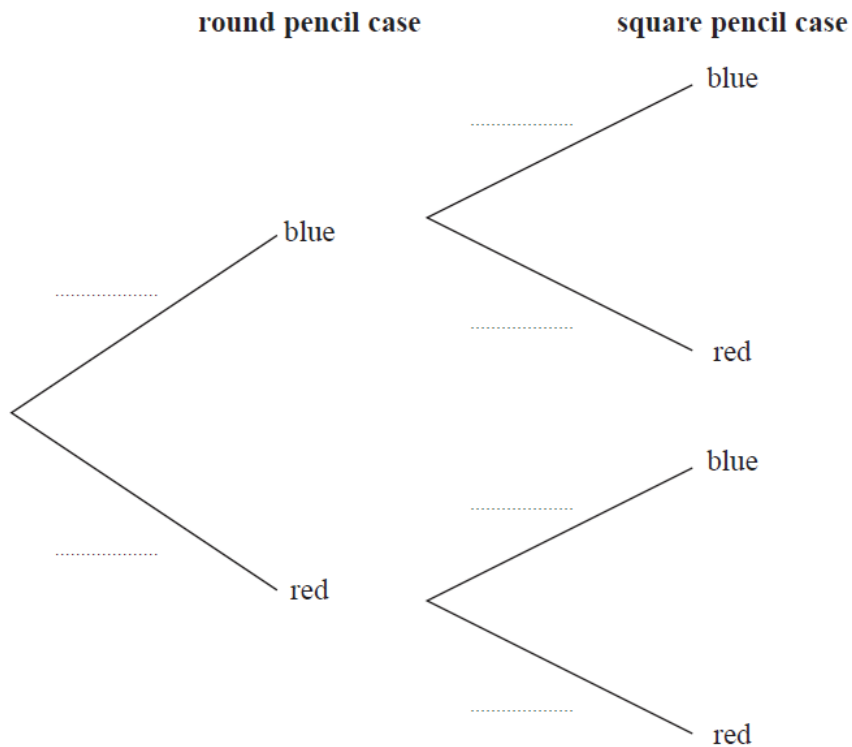
(2)

(*b*) Work out the probability that the pens Sameena takes are both red.

....

(2)

(Total for Question 25 is 4 marks)

26. (*a*) Write   340 000 000 in standard form.

....
(1)

(*b*) Work out $(1.6 \times 10^{-7}) \div (9.11 \times 10^{-3})$
Give your answer as an ordinary number correct to 3 significant figures.

....
(2)

(Total for Question 26 is 3 marks)

27. *ABC* is a right-angled triangle.
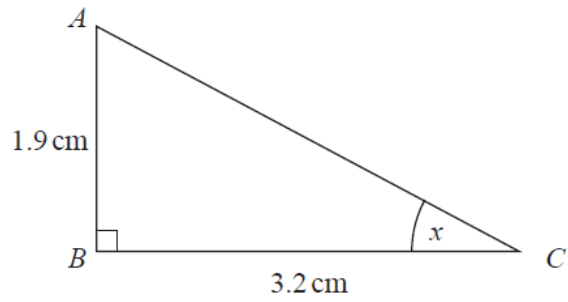
Work out the size of the angle marked *x*.
Give your answer correct to 1 decimal place.

.... °

(Total for Question 27 is 2 marks)

TOTAL FOR PAPER: 80 MARKS