GCSE Mathematics Practice Tests: Set 1

Paper 2H (Calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.

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

Information

- The total mark for this paper is 80
- Practice paper Set 2 question are shown in brackets
  – *use this as a guide as to how much time to spend on each question*.

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.

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Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Eric travels from the UK to India every year.

In 2010, the exchange rate was £1 = 67.1 rupees.
In 2012, the exchange rate was £1 = 82.5 rupees.

In 2010 Eric changed £600 into rupees.

How many pounds (£) did Eric have to change to rupees in 2012 to get the same number of rupees as he did in 2010?

£ .....

(Total 3 marks)

2. Ali is planning a party.

He wants to buy some cakes and some sausage rolls.

The cakes are sold in boxes.
There are 12 cakes in each box.
Each box of cakes costs £2.50.

The sausage rolls are sold in packs.
There are 8 sausage rolls in each pack.
Each pack of sausage rolls costs £1.20.

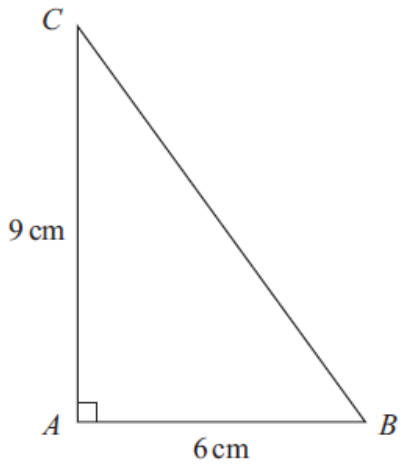
Ali wants to buy more than 60 cakes and more than 60 sausage rolls.
He wants to buy exactly the same number of cakes as sausage rolls.

What is the least amount of money Ali will have to pay?

£.....

(Total 5 marks)

3.



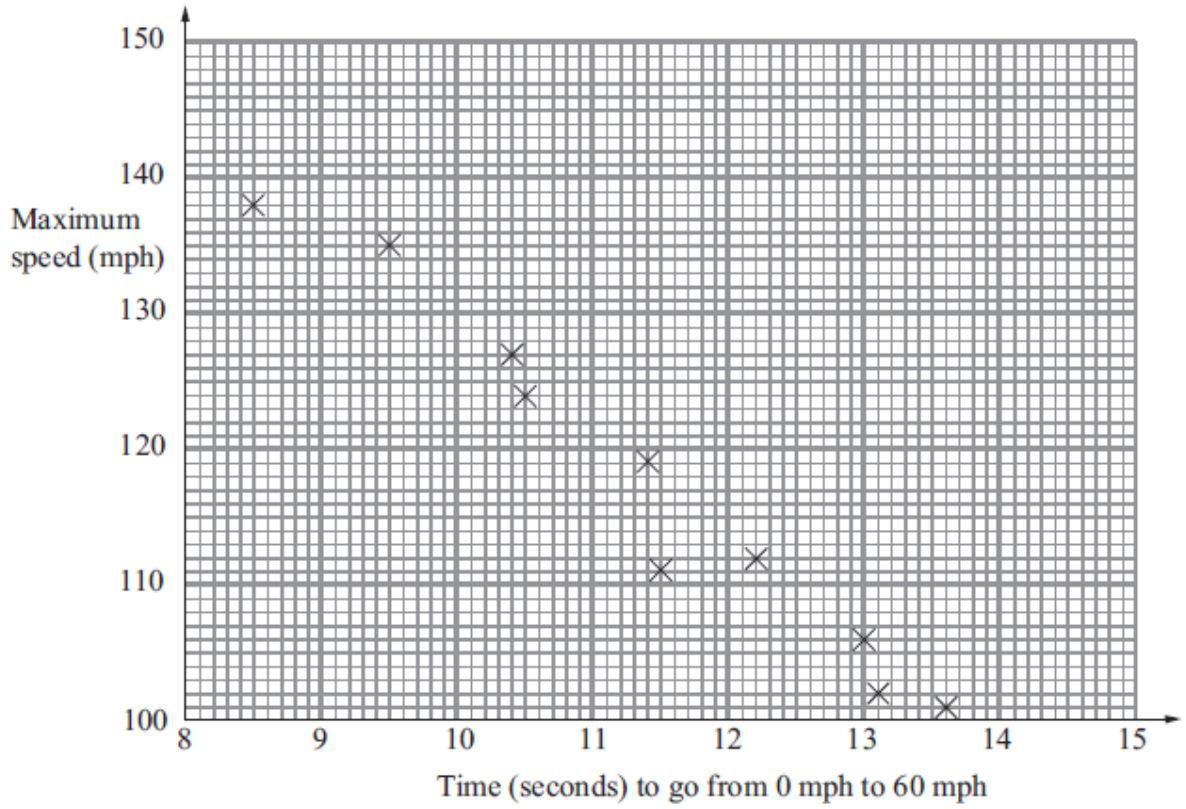
ABC is a right-angled triangle.
AB = 6 cm.
AC = 9 cm.

Work out the length of *BC*.
Give your answer correct to 3 significant figures.

.....cm

(Total 3 marks)

4. The scatter graph shows some information about 10 cars.
It shows the time, in seconds, it takes each car to go from 0 mph to 60 mph.
For each car, it also shows the maximum speed, in mph.



(a) What type of correlation does this scatter graph show?

.....

(1)

The time a car takes to go from 0 mph to 60 mph is 11 seconds.

(b) Estimate the maximum speed for this car.

..... mph

(2)

(Total 3 marks)

5. A town has three car parks.

South car park has x spaces.

North car park has 48 more spaces than South car park.

Central car park has four times as many spaces as South car park.

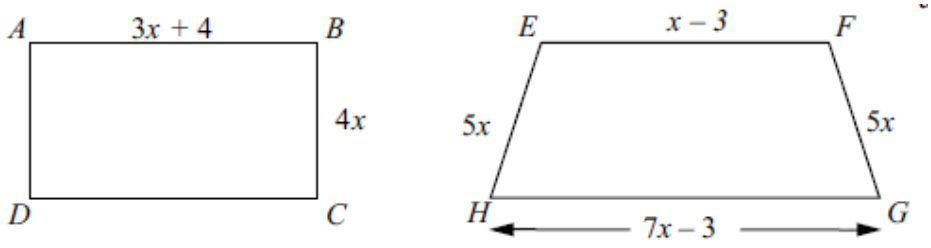
The total number of spaces in South car park and Central car park is more than twice the number of spaces in North car park.

Work out the least possible number of spaces in South car park.

.....

(Total 5 marks)

6. *ABCD* is a rectangle.
EFGH is a trapezium.



The perimeters of these two shapes are the same.
All measurements are in centimetres.

(i) Work out the value of x.

x = ...

(ii) Write down the length and the width of the rectangle.

length ..... cm

width ..... cm

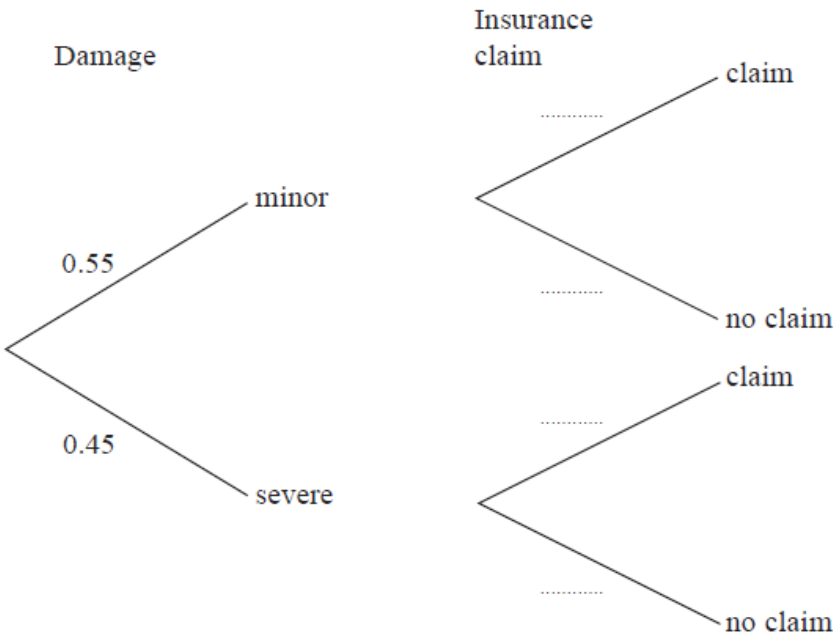
(Total 6 marks)

7. When a water pipe bursts the water can cause damage.
The damage can be minor or severe.

The probability of minor damage is 0.55
The probability of severe damage is 0.45

Insurance claims can be made for the damage.

When the damage is minor, the probability that an insurance claim is made is 0.22
When the damage is severe, the probability that an insurance claim is made is 0.74



(a) Complete the decision tree diagram.

(2)

The insurance company uses the information in the decision tree diagram to decide whether they need to increase their charges for insurance.

If the probability that insurance claims for damage will be made is greater than 50%, the insurance company will increase their charges for insurance.

(b) Will the insurance company increase their charges?

(4)

(Total 6 marks)

8. Solve $x + 2y = 3$

$x - y = 6$

$x =$ .....

$y =$ .....

(Total 3 marks)

---

9. Colin, Dave and Emma share some money.

Colin gets $\frac{3}{10}$ of the money.

Emma and Dave share the rest of the money in the ratio 3 : 2.

What is Dave's share of the money?

.....

(Total 4 marks)

---

10. The *n*th term of a sequence is $n^2 + 4$

Alex says

"The *n*th term of the sequence is always a prime number when *n* is an odd number."

Alex is wrong.
Give an example to show that Alex is wrong.

(Total 2 marks)

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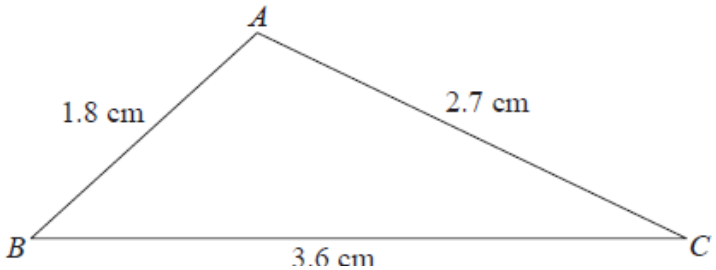
11. The diagram shows a triangle *ABC*.



(a) Work out the size of angle *A*.
Give your answer correct to 1 decimal place.

.....°
(3)

(b) Work out the area of triangle *ABC*.
Give your answer correct to 1 decimal place.

..... cm^2
(2)

(Total 5 marks)

12. The average fuel consumption (c) of a car, in kilometres per litre, is given by the formula

$$c = \frac{d}{f}$$

where d is the distance travelled in kilometres and f is the fuel used in litres.

d = 190 correct to 3 significant figures.
f = 25.7 correct to 1 decimal place.

By considering bounds, work out the value of c to a suitable degree of accuracy.
You must show **all** of your working **and** give a reason for your final answer.

(Total 5 marks)

13. Liquid A has a density of 0.7 g/cm^3.
Liquid B has a density of 1.6 g/cm^3.

140 g of liquid A and 128 g of liquid B are mixed to make liquid C.

Work out the density of liquid C.

..... g/cm^3

(Total 4 marks)

14. f is the function $f(x) = 2x + 5$.

(*a*) Find f(3).

.....

(1)

(*b*) Express the inverse function f^{-1} in the form $f^{-1}(x) =$

$f^{-1}(x) =$ .....

(2)

g is the function $g(x) = x^2 - 25$.

(*c*) Find g(–3).

.....

(1)

(*d*) (i) Find gf(*x*).
Give your answer as simply as possible.

$gf(x) =$ .....

(ii) Solve $gf(x) = 0$.

.....

(5)

(Total 9 marks)

15. Phil has 20 sweets in a bag.

5 of the sweets are orange.
7 of the sweets are red.
8 of the sweets are yellow.

Phil takes at random **two** sweets from the bag.

Work out the probability that the sweets will **not** be the same colour.

.....

(Total 4 marks)

16. P is inversely proportional to the square of x.

Given that $x = 5$ when $P = 6$, find the value of P when $x = 8$

Give your answer correct to 2 decimal places.

$P =$ .....

(Total 3 marks)

17. Fred is making two rectangular flower beds.
The dimensions of the larger rectangle will be three times the dimensions of the smaller rectangle.

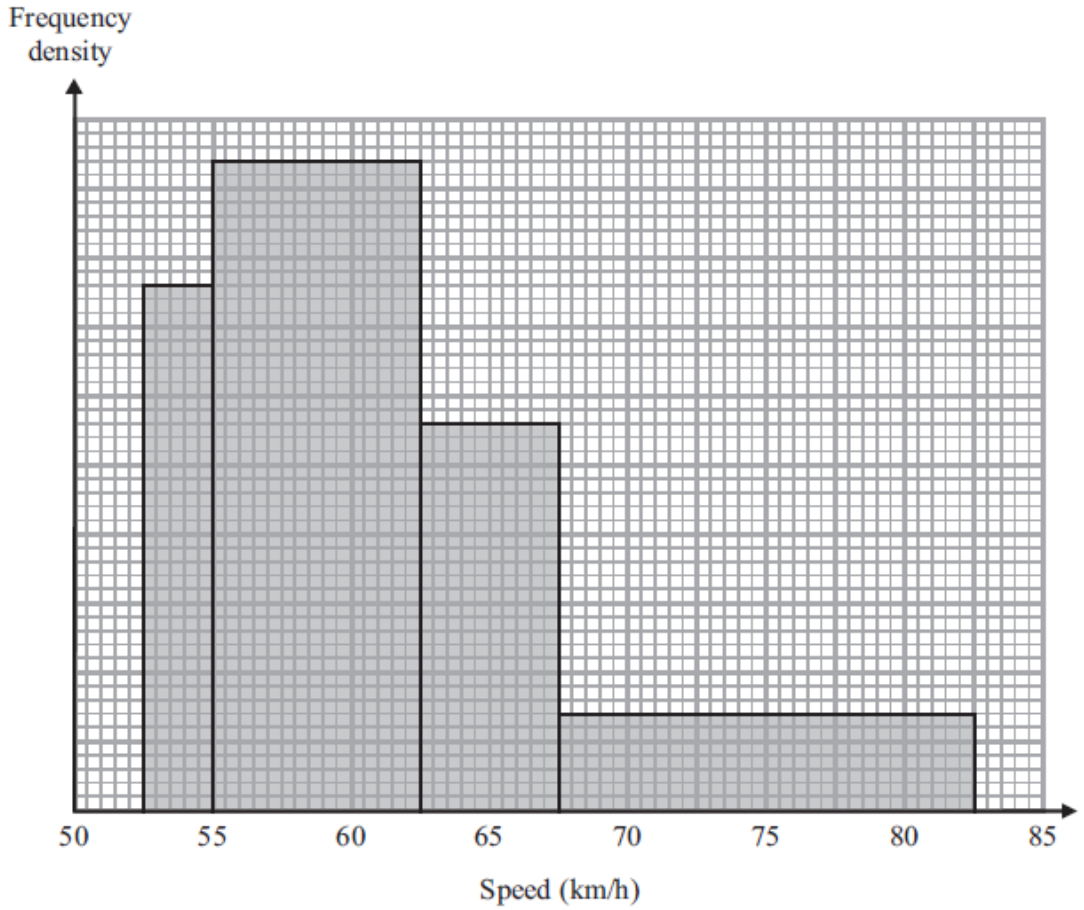
There is going to be the same depth of soil in each flower bed.
Fred needs 180 kg of soil for the smaller flower bed.

Work out how much soil Fred needs for the larger flower bed.

..... kg

(Total 2 marks)

18. The histogram gives information about the speeds, in km/h, of some cars on a road.



Work out an estimate for the median speed.
Give your answer correct to 1 decimal place. You must show your working.

.....

(Total 4 marks)

19. The line **L** is a tangent to the circle $x^2 + y^2 = 45$ at the point (–3, 6).

The line **L** crosses the x-axis at the point P.

Work out the coordinates of P.

.....

(Total 4 marks)

TOTAL FOR PAPER IS 80 MARKS