Maths GCSE SIL

There are 5 sections of questions to this work.

Watch the videos and makes notes on them for each of the 5 sections, before completing all questions in each section.

You may use a calculator where appropriate.

The key idea behind this summer work is to keep your knowledge as fresh as possible. **There is a GCSE resit opportunity in November, and this will help prepare you if we feel you sitting this exam is the best option for you. The discussions around this will happen with your class teacher in the first few weeks in September.**

If you wish to prepare further then this is the website we recommend.

https://mathsgenie.co.uk/gcse.html

https://www.mathsgenie.co.uk/papers.html

Percentages

Watch this video – make notes / copy examples

https://www.mathsgenie.co.uk/percentages.html

Now complete these questions

Q1.

David is going to buy a cooker.
The cooker has a price of £320
David pays a deposit of 15% of the price of the cooker.

How much money does David pay as a deposit?

£ ....

(Total for Question is 2 marks)

Q2.

There are 210 counters in a bag.

30% of these counters are red.

Work out the number of red counters in the bag.

....

(Total for question = 2 marks)

Q3.

Azmol is paid £1500 per month.
He is going to get a 3% increase in the amount of money he is paid.

Work out how much money Azmol will be paid per month after the increase.

£ ....

(Total for question = 2 marks)

Q4.

Adam gets a bonus of 30% of £80
Katy gets a bonus of £28

Work out the difference between the bonus Adam gets and the bonus Katy gets.

£ ....

(Total for question = 3 marks)

Q5.

There are 800 students at a school.
Each student has either a school dinner or a packed lunch.

31% of the students have packed lunches.

55% of the students are boys.
60% of the boys have school dinners.

How many girls have packed lunches?
You must show all your working.

....
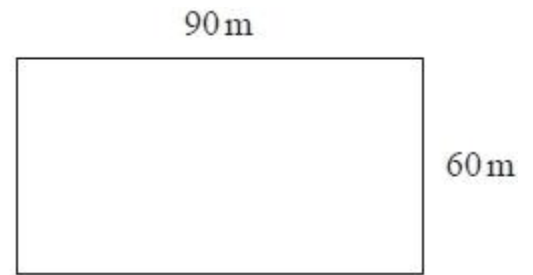
(Total for question = 4 marks)

Q6.

A garden is in the shape of a rectangle 90 m by 60 m.

Flowers are grown in 40% of the garden.
The rest of the garden is grass.

Work out the area of the garden that is grass.

90 m

60 m

.... m^2

(Total for question = 4 marks)

Q7.

Bhavin buys a car in a sale.

Before the sale, the cost of the car was £6720
In the sale, the cost of every car is reduced by 20%.

Bhavin pays a deposit of £1500
He will pay the rest of the cost in 24 equal monthly payments.

Work out the amount of each monthly payment.
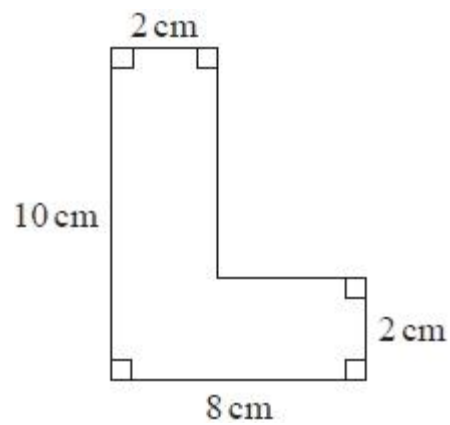You must show all your working.

£ ....

(Total for question = 5 marks)

Area of compound shapes

Watch this video – make notes / copy examples

https://www.mathsgenie.co.uk/compound-shapes.html

Now complete these questions

Q8.

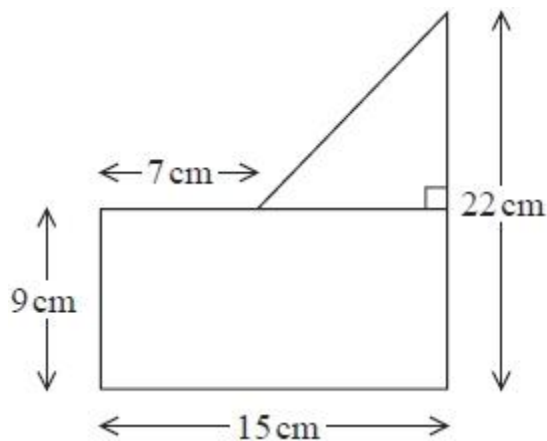

Work out the area of the shape.

.... cm^2

(Total for question is 2 marks)

Q9. Here is a shape made from a rectangle and a triangle.

Work out the total area of the shape.

.... cm²

(Total for question = 3 marks)

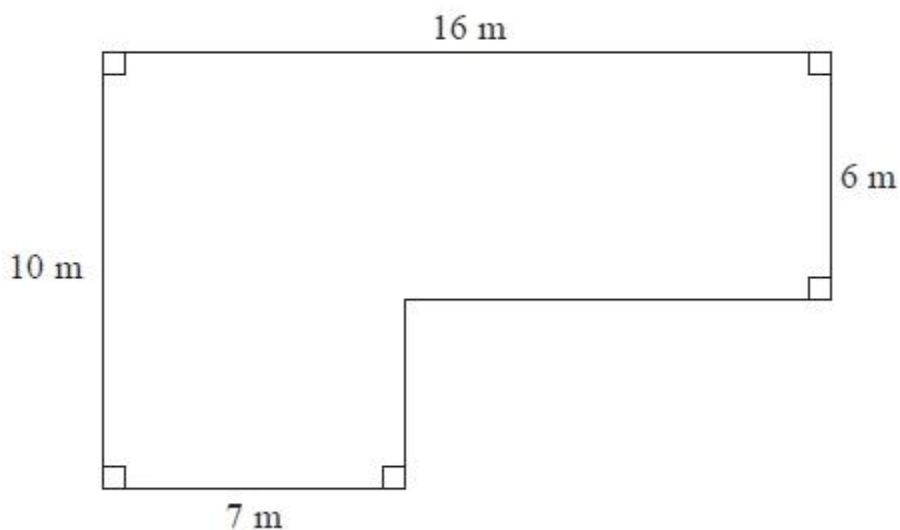**Q10.** The diagram shows the plan of a small field.

Diagram **NOT** accurately drawn

Kevin is going to keep some pigs in the field.
Each pig needs an area of 36 square metres.

Work out the greatest number of pigs Kevin can keep in the field.

(Total for Question is 4 marks)

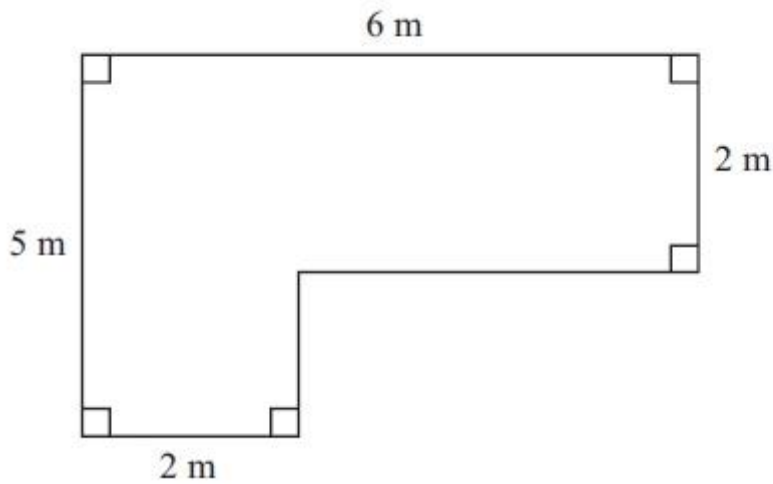**Q11.** The diagram shows the plan of the floor of Mrs Phillips' living room.

6 m

Diagram **NOT** accurately drawn

2 m

5 m

2 m

Mrs Phillips is going to cover the floor with floor boards.
One pack of floor boards will cover 2.5 m².

How many packs of floor boards does she need?
You must show your working.

(Total for Question is 4 marks)

Q12.

* The diagram shows the plan of a floor.
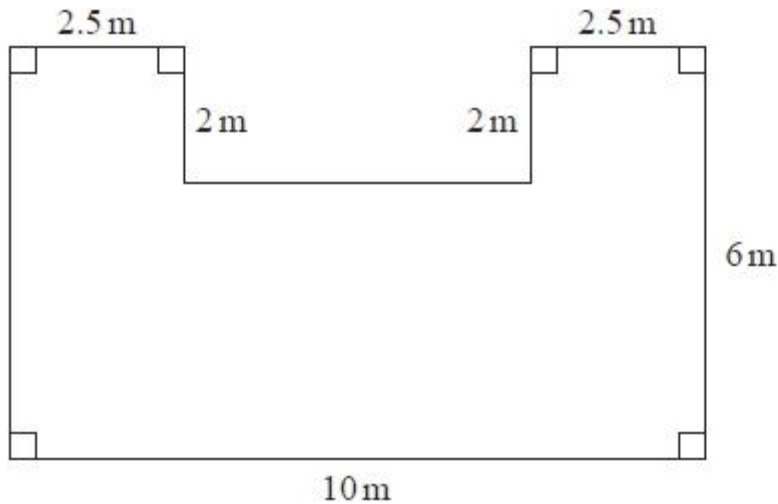
2.5 m   2.5 m

2 m   2 m

Diagram **NOT** accurately drawn

6 m

10 m

Angie is going to varnish the floor.

She needs 1 litre of varnish for 5 m² of floor.
There are 2.5 litres of varnish in each tin of varnish.

Angie has 3 tins of varnish.

Does she have enough varnish for all the floor?
You must show all your working.

(Total for question = 5 marks)

Solving equations

Watch these 3 videos – make notes / copy examples

https://www.mathsgenie.co.uk/solving-equations.html

Now complete these questions

Q13.

(a) Solve $x + x + x = 6$

$x =$ ....
(1)

(b) Solve $t + 5 = 20$

$t =$ ....
(1)

(c) Solve $4y = 36$

$y =$ ....
(1)

(d) Solve $\dfrac{1}{2}f + 5 = 12$

$f =$ ....
(2)

Q14.

(a) Solve $x - 5 = 17$

$x =$ ....
(1)

(b) Solve $\frac{m}{3} = 6$

$m =$ ....
(1)

(c) Solve $5y + 7 = 24$

$y =$ ....
(2)

Q15.

(a) Solve $3(2p - 5) = 21$

$p =$ . . . .
(3)

(b) Solve $9x - 11 = 5x + 7$

$x =$ . . . .
(3)

Q16.

Solve $3(x - 2) = x + 7$

$x =$ . . . .
(Total for Question is 3 marks)

Q17.

(a) Solve $8f + 19 = 15$

$f =$ ....

(2)

(b) Solve $2c + 5 = c + 8$

$c =$ ....

(2)

Q18.   Solve $5x - 6 = 3(x - 1)$

$x =$ ....

(Total for question = 3 marks)

Q19.

The diagram shows a right-angled triangle.
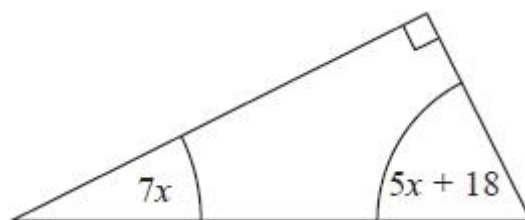
All the angles are in degrees.

Work out the size of the smallest angle of the triangle.

.... °

(Total for question is 3 marks)

Pythagoras' Theorem

Watch this video – make notes / copy examples

https://www.mathsgenie.co.uk/pythagoras.html

Now complete these questions

Q20.
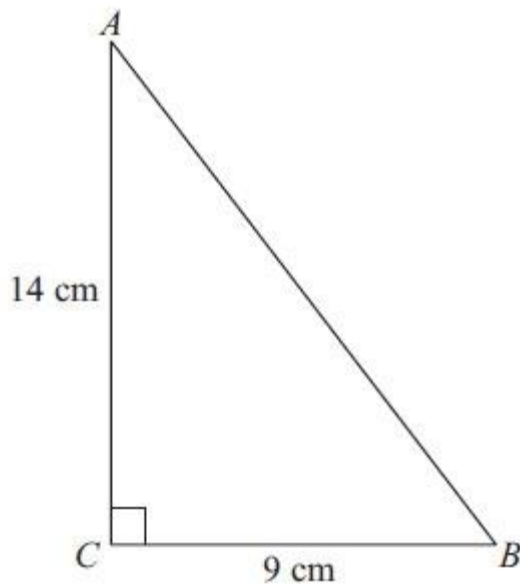
Diagram **NOT** accurately drawn

Calculate the length of *AB.*
Give your answer correct to 1 decimal place.

....

(Total for Question is 3 marks)

Q21.

ABC is a right-angled triangle.

11.7 cm

19.3 cm
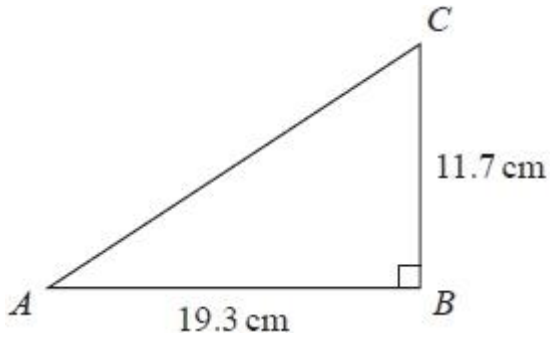
Diagram **NOT** accurately drawn

Calculate the length of *AC*.
Give your answer correct to 3 significant figures.

.... cm

(Total for question = 3 marks)

Q22.

DEF is a right-angled triangle.

5.2 cm

6.8 cm
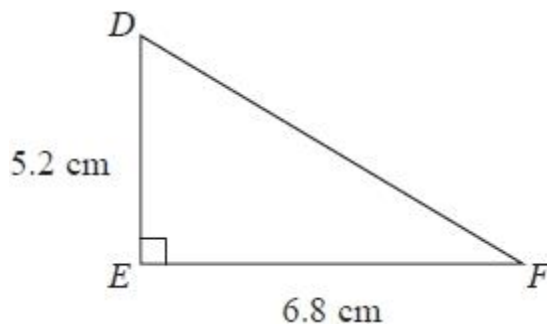
Diagram **NOT** accurately drawn

Work out the length of *DF*.
Give your answer correct to 2 decimal places.

....cm

(Total for question = 3 marks)

Q23.

GHJ is a right-angled triangle.

24.5 cm

G   *H*

10.6 cm

J
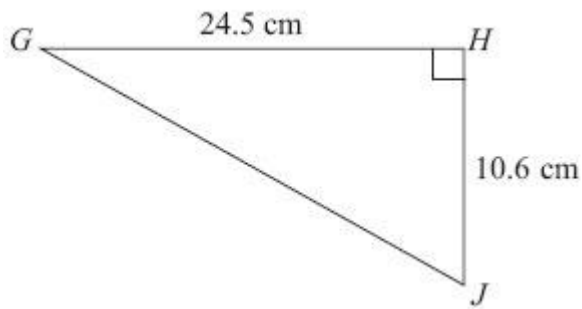
Diagram **NOT** accurately drawn

Calculate the length of *GJ*.
Give your answer correct to one decimal place.

....

(Total for Question is 3 marks)

Q24.

Triangle *ABC* has perimeter 20 cm.

AB = 7 cm.
BC = 4 cm.

By calculation, deduce whether triangle *ABC* is a right–angled triangle.

(Total for question = 4 marks)

Expanding and factorising

Watch these 2 videos – make notes / copy examples

https://www.mathsgenie.co.uk/expanding-and-factorising.html

Now complete these questions

Q25.

(a) Expand $5(m + 2)$

....

(1)

(b) Factorise $y^2 + 3y$

....

(1)

Q26.

(a) Expand $4(3x + 5)$

....

(1)

(b) Expand and simplify $2(x - 4) + 3(x + 5)$

....

(2)

Q27.

(a) Expand $3(2 + t)$

....

(1)

(b) Expand $3x(2x + 5)$

....

(2)

Q28.

Expand and simplify $5(p + 3) - 2(1 - 2p)$

....

(Total for question = 2 marks)

Q29.

(a) Factorise $4x + 10y$

....

(1)

(b) Factorise $x^2 + 7x$

....

(1)

Q30.

(a) Factorise $3x + 6$

....

(1)

(b) Expand and simplify $5(y - 2) + 2(y - 3)$

....

(2)

Q31.

(a) Factorise $5 - 10m$

....

(1)

(b) Factorise fully $2a^2b + 6ab^2$

....

(2)