FORMING AND SOLVING EQUATIONS

OCR GSCE – Tuesday 21 May 2019 – Paper 4 (Calculator) Higher Tier

1.

5 Bennie is 7 years older than Ayesha.
   Chloe is twice as old as Bennie.
   The sum of their three ages is 57.

   Work out the ages of Ayesha, Bennie and Chloe.
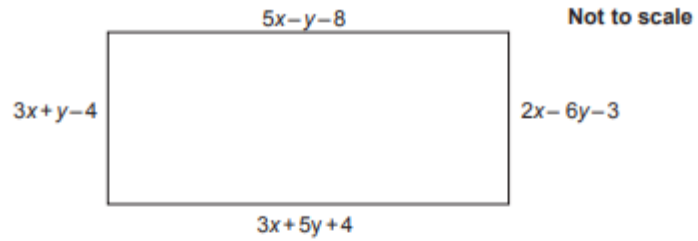
   Ayesha's age is ....

   Bennie's age is ....

   Chloe's age is .... **[6]**

2.

9 The dimensions, in centimetres, of this rectangle are shown as algebraic expressions.

$5x-y-8$

Not to scale

$3x+y-4$

$2x-6y-3$

$3x+5y+4$

Work out the length and width of the rectangle.

length = ... cm

width = ... cm

3.

6   This rectangle has length $(4x - 5)$ cm and width $(x + 3)$ cm.

$(x + 3)$ cm

Not to scale

$(4x - 5)$ cm
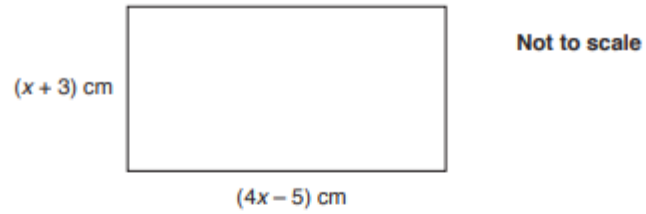
The perimeter of the rectangle is 46 cm.

Calculate the area of the rectangle.

.... cm^2 **[5]**

4.

2   Carla runs every 3 days.
     She swims every Thursday.
     On Thursday 9 November, Carla both runs and swims.

     What will be the next date on which she both runs and swims?

.... **[3]**

5.

9   Each week Dan drives two routes, route X and route Y.

One week he drives route X three times and route Y twice.
He drives a total of 134 miles that week.

Another week he drives route X twice and route Y five times.
He drives a total of 203 miles that week.

(a) Find the length of each route.

(a) route X = ... miles

route Y = ... miles **[5]**

(b) State an assumption that has been made in answering part **(a)**.

....

.... **[1]**

6.

5   Kieran, Jermaine and Chris play football.

- Kieran has scored 8 more goals than Chris.
- Jermaine has scored 5 more goals than Kieran.
- Altogether they have scored 72 goals.

How many goals did they each score?

Kieran ....
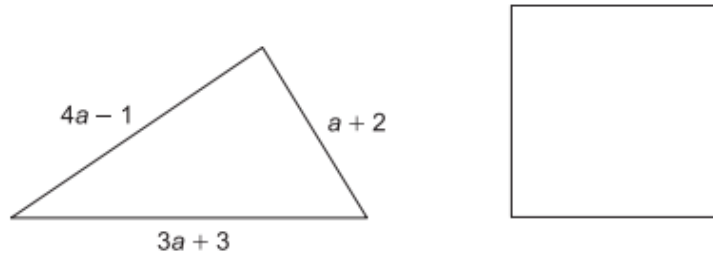
Jermaine ....

Chris ....

[5]

7.

5 The perimeter of the triangle is the same length as the perimeter of the square.

Find an expression for the length of one side of the square in terms of a.
Give your answer in its simplest form.

.... **[4]**

8.

9   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
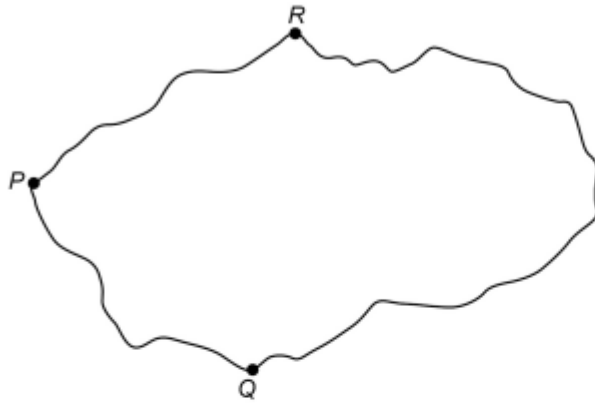
Not drawn
accurately

Work out the length of *PQ*.

[4 marks]

Answer _____ km

9.

18   Beth and Mia translate documents from Spanish into English.
A set of documents that would take Beth 8 days would take Mia 10 days.

Beth starts to translate the documents.
After 2 days Beth and Mia both work on translating the documents.

How many **more** days will it take to complete the work?
You **must** show your working.

[4 marks]

Answer _____ days

10.
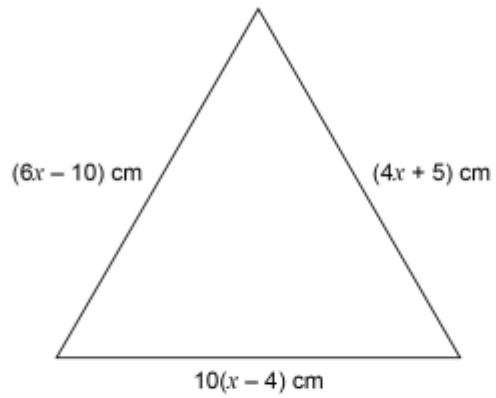
10   This triangle is equilateral.

Not drawn
accurately

$(6x - 10)$ cm $(4x + 5)$ cm

$10(x - 4)$ cm

Is the perimeter of the triangle greater than one metre?
You **must** show your working.

[5 marks]

_____

_____

_____

_____

_____

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_____

_____

14   A ball is thrown from a height of 15 metres.

It bounces to height h_1, then to height h_2 as shown.

Not drawn
accurately

15 m

h_1

h_2
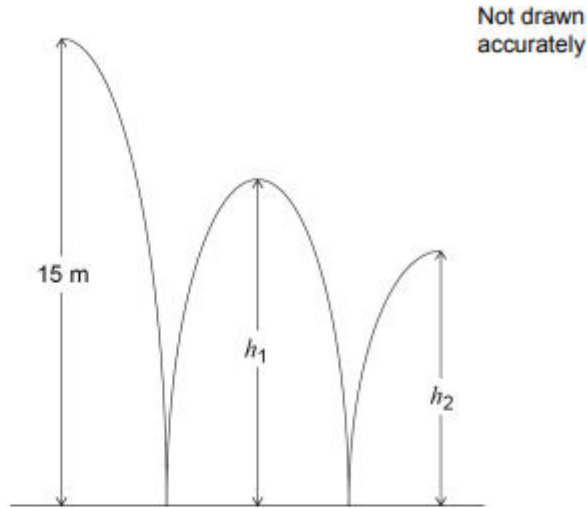
h_1 is three quarters of the original height.

14 (a)   Jack expects h_2 to be three quarters of h_1

Work out the value of h_2 that he expects.

[2 marks]

Answer _____ metres

14 (b) In fact, h_2 is two thirds of h_1

How does this affect the answer to part (a)?

Tick a box.

☐   The ball bounced higher than he expected

☐   The ball bounced lower than he expected

Show working to support your answer.

[2 marks]

_____

_____

_____

_____

AQA GSCE – Wednesday 25 May 2017 – Paper 1 (Non - Calculator) Higher Tier

12.

25   In an office there are twice as many females as males.

$\frac{1}{4}$ of the females wear glasses.

$\frac{3}{8}$ of the males wear glasses.

84 people in the office wear glasses.

Work out the number of people in the office.

[4 marks]

_____

_____

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_____

Answer _____