1 The value of $\frac{x(y-4)}{5}$ is -2

Work out a possible pair of values for x and y.
You must show your working.

.....

(2 marks)

2 $w = 4$ and $t = -1$

Work out $(w - t)^3$

.....

(2 marks)

3 Solve

a $2x - 3 = 4(x - 5)$

.....

b $2x^2 = 50$

.....

(5 marks)

4 A bag contains only Red, Blue and Green counters.

There are four times as many Blue counters as Green counters.
There are 41 counters altogether in the bag.

Some Red counters are added to the bag.
There are now 52 counters in the bag.
The number of Red counters has doubled.

How many Green counters are there in the bag?
You must show your working.

.....

(3 marks)

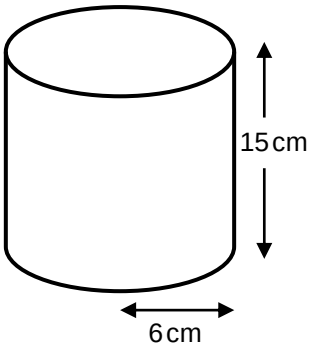
5 A map has a scale factor of 1 : 24 000
The distance between two towns is 3.6 km.

How far will this be on the map?

.....

(3 marks)

6 A cylinder has a radius of 6 cm and a height of 15 cm.



Not drawn accurately

Work out the volume of the cylinder.

..... cm^3

(2 marks)

7 Amy, Beth and Chloe share £660 between them.
Amy receives the largest amount of £270.
The ratio of Amy's share to Chloe's share is 3 : 2

Work out the ratio of Beth's share to Chloe's share.

.....

(3 marks)

8 Solve $7 > 2n - 3$

.....

(2 marks)

9 **a** Round 0.0417 correct to 2 significant figures.

.....

b Use approximations to estimate the value of $\sqrt{\frac{8014}{51.1 \times 0.408}}$

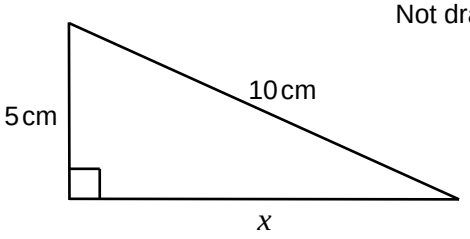
You must show your working.

.....

(5 marks)

10 Work out the value of x.

Not drawn accurately



.....cm

(3 marks)

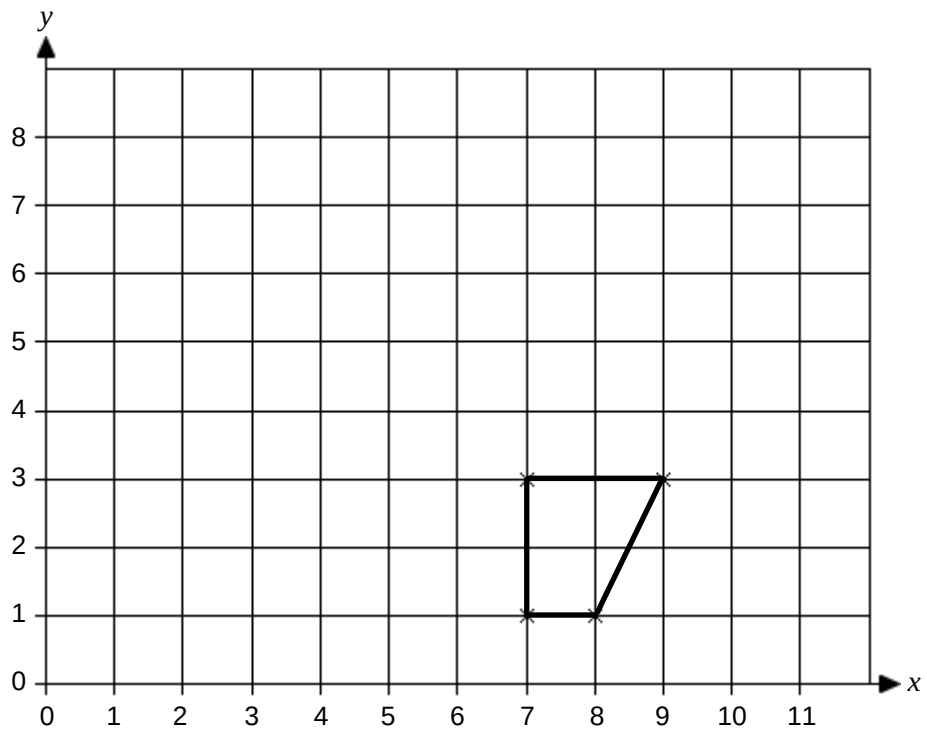
11 Solve this pair of simultaneous equations:

$5x + y = 13$
$y = 3x - 11$

x = ... y = ...

(3 marks)

12 A trapezium is drawn on this grid.



Using (1, 7) as the centre of enlargement,
draw an enlargement of the trapezium of scale factor $\frac{1}{2}$.

(2 marks)

13 **a** Write 7.16×10^{-2} as a decimal number.

.....

(1 mark)

b Write in standard index form

i 14 million

.....

ii 0.000654

.....

(3 marks)

14 Make x the subject of $T = m + \frac{x}{h}$

.....

(2 marks)

15 Expand and simplify

a $3(4m - 3t) - 2(m - 2t)$

.....

b $(y + 10)(y - 3)$

.....

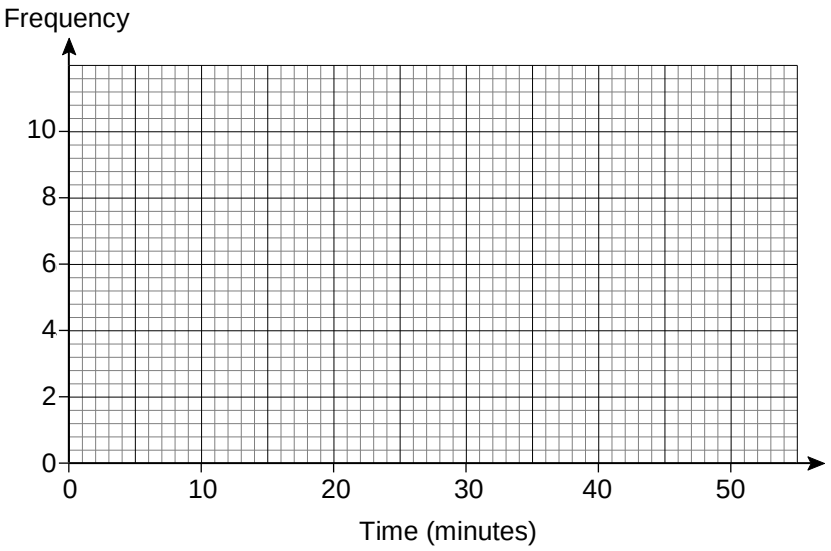
(4 marks)

16 The grouped frequency table shows the times (in minutes) taken by 40 students from school *A* to solve a puzzle.

Time (minutes)	Frequency
$0 < t \leq 8$	2
$8 < t \leq 16$	10
$16 < t \leq 24$	6
$24 < t \leq 32$	4
$32 < t \leq 40$	10
$40 < t \leq 48$	8
Total	40

a **i** On the graph paper, construct a frequency diagram for this data.

ii Use your frequency diagram to draw a frequency polygon for this data.



b Work out an estimate of the mean time taken by the 40 students from school *A*.

.....min

c Students from school *B* also solve the puzzle.
Their times range from 12 minutes to 38 minutes.
Their mean time taken is 27.5 minutes.

Write two sentences comparing the times taken by the students from schools *A* and *B.*

.....

.....

.....

.....

.....

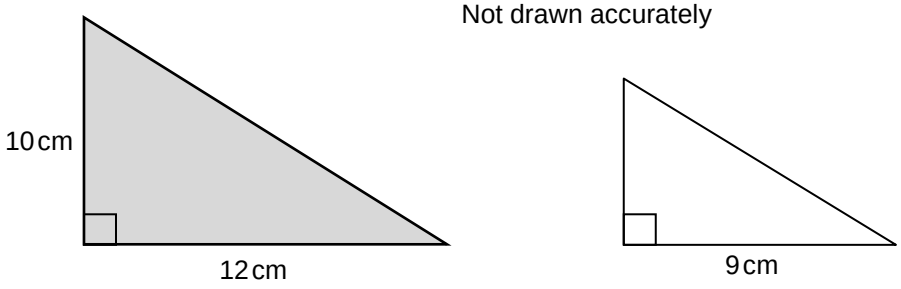
d Use the frequency table for school *A* to identify the class interval that contains the median mark for school *A*.

.....

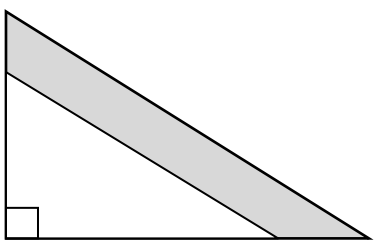
(10 marks)

17 These two triangles are similar.

Not drawn accurately



The smaller triangle is placed on top of the larger triangle, as shown.



Work out the area of the larger triangle that can still be seen.

.....cm^2

(4 marks)

18 Sam bought a bike in a sale for £312.
The original price was £480.
Work out the percentage reduction.

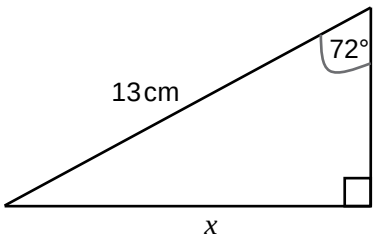
.....%

(3 marks)

19 Use the sine ratio to work out x.

Give your answer correct to 1 decimal place.

Not drawn accurately



.....cm

(3 marks)

20 The rule for finding the next term in a sequence is:

Subtract k and then multiply by 3

The second term of the sequence is 15 and the third term is 24.

... , 15, 24, ...

Work out the first term of the sequence.
You must show your working.

.....

(4 marks)

21 Factorise completely

a $15c - 20c^2$

.....

b $x^2 - 7x + 6$

.....

c $x^2 - 16$

.....

(5 marks)

22 A rectangle has a length of 16 cm and a width of 9 cm. Both measurements are correct to the nearest centimetre.

Work out the lower and upper bounds for the area, A, of the rectangle.
Write your answer using an inequality.

.....

(4 marks)

23 Work out $64^{-\frac{1}{2}}$

You must show your working.

.....

(2 marks)