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Answer all TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 A plane flew from Madrid to Dubai.

The distance the plane flew was 5658 km.

The flight time was 8 hours 12 minutes.

Work out the average speed of the plane.

..... km/h

(Total for Question 1 is 3 marks)

- 2 Here are the first 4 terms of an arithmetic sequence.

85 79 73 67

Find an expression, in terms of n , for the n th term of the sequence.

.....

(Total for Question 2 is 2 marks)



3

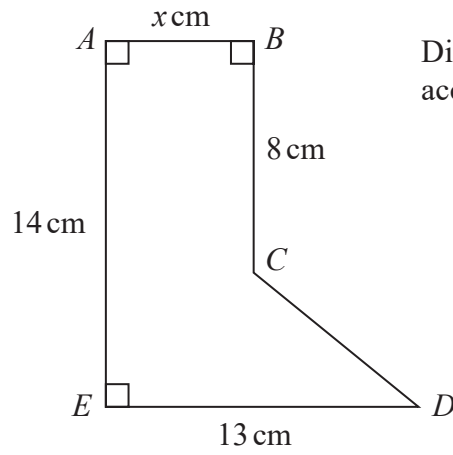


Diagram **NOT** accurately drawn

The diagram shows the shape $ABCDE$.

The area of the shape is 91.8 cm^2

Work out the value of x .

$x = \dots\dots\dots$

(Total for Question 3 is 4 marks)

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4 On a farm there are chickens, ducks and pigs.

The ratio of the number of chickens to the number of ducks is 7:2

The ratio of the number of ducks to the number of pigs is 5:9

There are 36 pigs on the farm.

Work out the number of chickens on the farm.

.....
(Total for Question 4 is 3 marks)



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

.....
(2)

(b) Make t the subject of the formula $p = at - d$

.....
(2)

Given that $\frac{w^5 \times w^n}{w^3} = w^{10}$

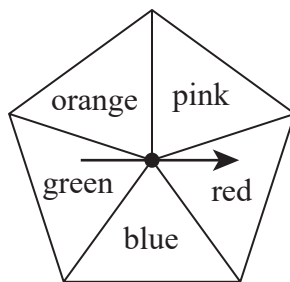
(c) work out the value of n .

$n =$
(2)

(Total for Question 5 is 6 marks)



- 6 Grace has a biased 5-sided spinner.



Grace is going to spin the arrow on the spinner once.

The table below gives the probabilities that the spinner will land on red or on blue or on green.

Colour	Red	Blue	Green	Orange	Pink
Probability	0.20	0.12	0.08		

The probability that the spinner will land on orange is 3 times the probability that the spinner will land on pink.

- (a) Work out the probability that the spinner will land on orange.

.....
(3)

Grace spins the arrow on the spinner 150 times.

- (b) Work out an estimate for the number of times the spinner lands on blue.

.....
(2)

(Total for Question 6 is 5 marks)



7 $-4 \leq 2y < 6$

y is an integer.

(a) Write down all the possible values of y .

.....
(2)

(b) Solve the inequality $7t - 3 \leq 2t + 31$

Show your working clearly.

.....
(2)

(Total for Question 7 is 4 marks)

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8 The table shows the populations of five countries.

Country	Population
China	1.4×10^9
Germany	8.2×10^7
Sweden	9.9×10^6
Fiji	9.1×10^5
Malta	4.3×10^5

- (a) Work out the difference between the population of China and the population of Germany.
Give your answer in standard form.

.....
(2)

Given that

$$\text{population of Fiji} = \frac{1}{k} \times \text{population of Sweden}$$

- (b) work out the value of k .
Give your answer correct to the nearest whole number.

$k =$
(2)

(Total for Question 8 is 4 marks)



9 (a) Factorise fully $25a^4c^7d + 45a^9c^3h$

.....
(2)

(b) Solve $(2x + 5)^2 = (2x + 3)(2x - 1)$

$x =$
(3)

(Total for Question 9 is 5 marks)

10 Jethro has sat 5 tests.

Each test was marked out of 100 and Jethro's mean mark for the 5 tests is 74

Jethro has to sit one more test that is also to be marked out of 100

Jethro wants his mean mark for all 6 tests to be at least 77

Work out the least mark that Jethro needs to get for the last test.

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

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