

A1

$$A = (12 \times 11 \times 10) - (9 + 8 + 7) + (6 \times 5 \times 4 \times 3 \times 2) - 1$$

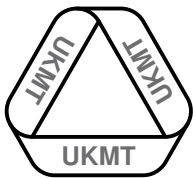
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Pass on the sum of the digits of A .

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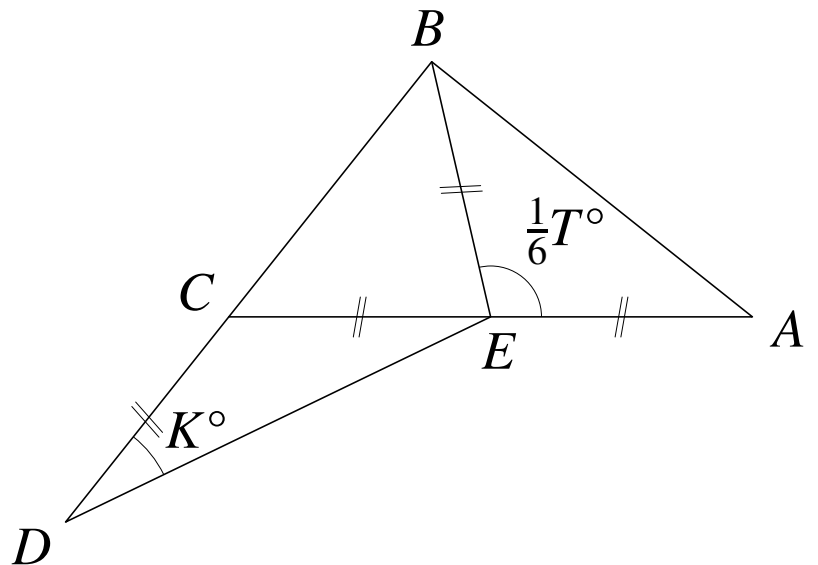
A3

T is the number you will receive.

In the shape shown, $CD = EC = EB = EA$.

Angle
 BEA is $\frac{1}{6}T^\circ$
and
angle CDE
is K° .

Pass on the
value of K .

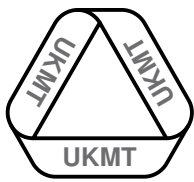


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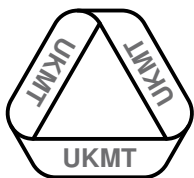


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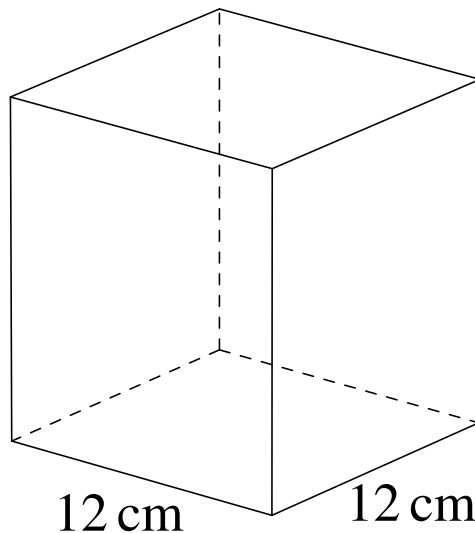
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T is the number you will receive.

A2

A cuboid has a square base measuring 12 cm by 12 cm. The cuboid has volume $108T \text{ cm}^3$ and total surface area $A \text{ cm}^2$.



Pass on the value of A .

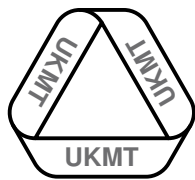
T is the number you will receive.

A4

Dr. Prime, the headmaster of Maths Academy, likes to have all his classes the same size.

Last year, when there were fewer than 600 pupils in his school, he noticed that he could divide them exactly into classes of 36 pupils, 30 pupils or T pupils.

Write down the number of pupils in Maths Academy.

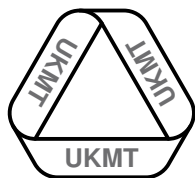


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B1

$$B = \frac{0.9 \times 0.08 - 0.7 \times 0.06}{0.005}$$

Pass on the value of B .

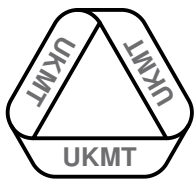
B3

T is the number you will receive.

T and $(2T - 10)$ are the first two terms in a linear sequence.

The 20th term of the sequence is K .

Pass on the value of K .

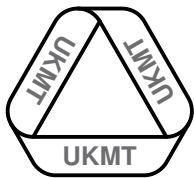


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B2

T is the number you will receive.

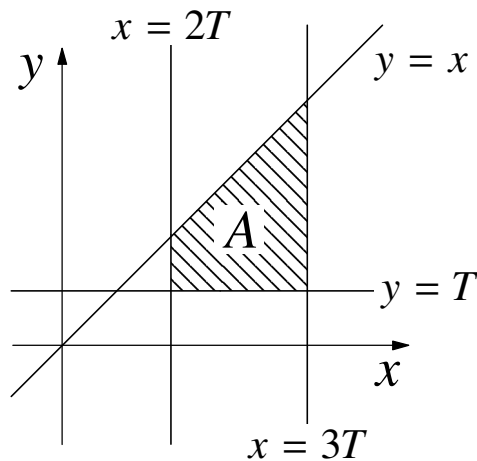
A is the total number of edges of a prism whose cross-section is a T -sided polygon. B is the total number of faces of a pyramid whose base is a $(T - 1)$ -sided polygon.

Pass on the value of $A - B$.

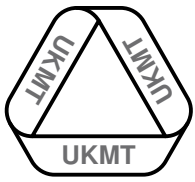
B4

T is the number you will receive.

The diagram shows lines with equations $y = x$, $y = T$, $x = 2T$ and $x = 3T$.



Write down the value of the area of region A .

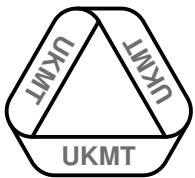


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C1

$$C = \left(6\frac{6}{7} \times 7\frac{7}{8} \times 8\frac{8}{9}\right) \div \left(2\frac{2}{3} \times 3\frac{3}{4}\right)$$

Pass on the value of C .

C3

T is the number you will receive.

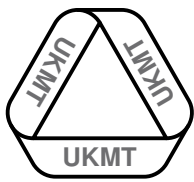
In Mathstown Academy, the T people in year 7 were asked if they like Rugby and also if they like Cricket.

$\frac{1}{2}T$ said they like Rugby.

$\frac{2}{3}T$ said they like Cricket.

$\frac{1}{9}T$ said they like neither.

Pass on how many like both sports.

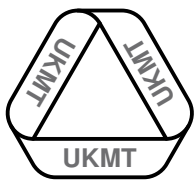


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C2

T is the number you will receive.

Adam is now twice as old as Zoe.

In two years' time, Adam will be four times as old as Zoe was one year ago.

In T years' time, Adam will be X years old.

Pass on the value of X .

C4

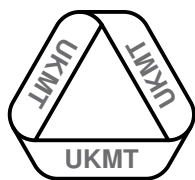
T is the number you will receive.

I am thinking of a positive whole number. I perform the following calculations on it (in order).

multiply by 4
add 7
multiply by 3
subtract 27
divide by 6
add 4

The answer is T .

Write down my original number.

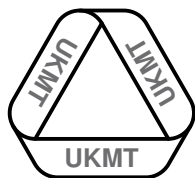


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D1

$$D = \frac{9^2 - 8^2 + 7^2 - 6^2 + 5^2 - 4^2 + 3^2 - 2^2 + 1^2}{9 - 8 + 7 - 6 + 5 - 4 + 3 - 2 + 1}$$

Pass on the value of D .

D3

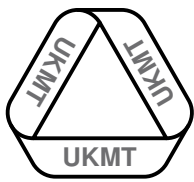
T is the number you will receive.

Flora likes to invest her money in shares. At the start of 2012, she invested £1000.

The value of her investment increased by $10T\%$ in 2012, increased by £ $100T$ during 2013, but decreased by $10T\%$ during 2014.

By the end of 2014, the value of Flora's total investment differed by £ F from the original value.

Pass on the value of F .

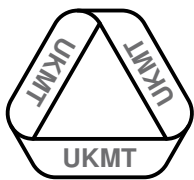


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D2

T is the number you will receive.

$$\begin{aligned}Tx - 2y &= 8 \\ x + 6y &= 3T + 5\end{aligned}$$

Solve the simultaneous equations and pass on the value of x .

D4

T is the number you will receive.

The human brain is estimated to be able to store 2.4 petabytes of information.

A DVD holds about 5 gigabytes of information.

It takes 1 minute to burn a DVD of information. You have T DVD-burners all working at the same time. Write down how long it would take to burn your entire brain of data to DVDs. Give your answer to the nearest hour.

[1 petabyte $\approx 10^{15}$ bytes, and 1 gigabyte $\approx 10^9$ bytes.]

TEAM NUMBER

SCHOOL NAME

<p>A1</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>B1</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>C1</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>D1</p> <p style="text-align: right;">(0) (1) (3)</p>
<p>A2</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>B2</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>C2</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>D2</p> <p style="text-align: right;">(0) (1) (3)</p>
<p>A3</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>B3</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>C3</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>D3</p> <p style="text-align: right;">(0) (1) (3)</p>
<p>A4</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>B4</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>C4</p> <p style="text-align: right;">(0) (1) (3)</p>	<p>D4</p> <p style="text-align: right;">(0) (1) (3)</p>

BONUS (3)

BONUS (3)

BONUS (3)

BONUS (3)

A TOTAL /15

B TOTAL /15

C TOTAL /15

D TOTAL /15

Circle the mark awarded for each question and cross out the others.
 At the end of the round, either circle the bonus mark or cross it out.

FINAL SCORE /60