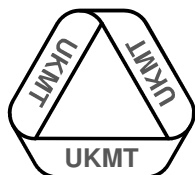


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A1

Each letter represents the number corresponding to its position in the alphabet.

For example, $A = 1$, $B = 2$, $C = 3$ and $Z = 26$.

Pass on the value of $(U - K) \times M - T$.

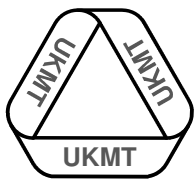
A3

T is the number you will receive.

A number sequence is created by subtracting the n th even number from the n th square.

The sequence starts $-1, 0, 3, \dots$

Pass on the value of the T th term in this sequence.

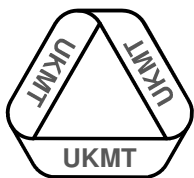


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A2

T is the number you will receive.

$$K = \frac{5}{6}T - \frac{4}{5}T + \frac{2}{3}T - \frac{1}{2}T.$$

Pass on the value of $\frac{K}{2}$.

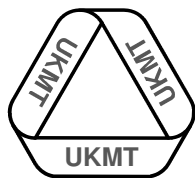
A4

T is the number you will receive.

One of the angles in a pentagon is $(T + 1)^\circ$. The other four angles are in the ratio of the first four triangular numbers.

The largest angle is K° .

Write down the value of K .

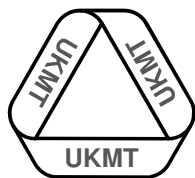


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B1

$$A = 8 \times (-6 - 4 \times -2) - 7 \times (-5 - 3 \times -1).$$

Pass on the value of A .

B3

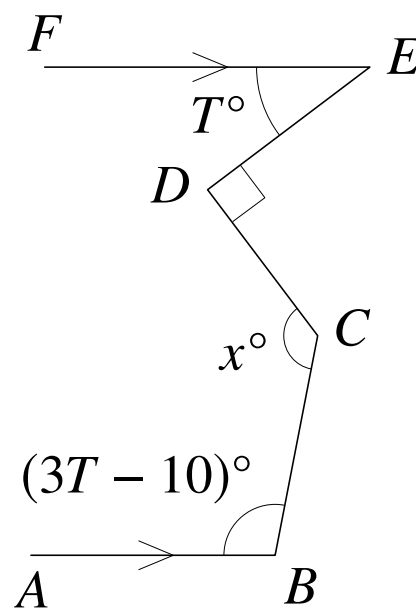
T is the number you will receive.

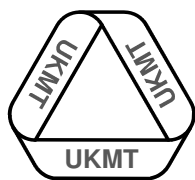
In the diagram, the lines FE and AB are parallel.

$\angle DEF = T^\circ$, $\angle CDE = 90^\circ$
and $\angle ABC = (3T - 10)^\circ$.

The size of the obtuse angle BCD is x° .

Pass on the value of $\frac{1}{10}x$.



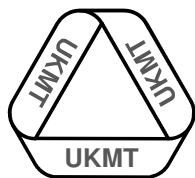


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B2

T is the number you will receive.

The sizes of the interior angles, in degrees, of a certain quadrilateral form a sequence where each angle is T° more than the previous.

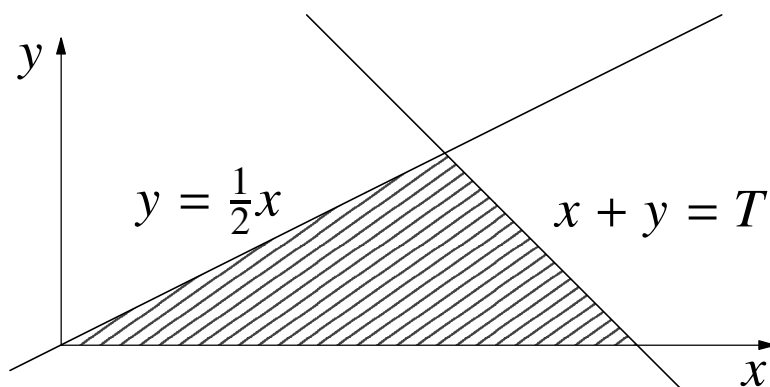
The smallest angle is K° .

Pass on the value of K .

B4

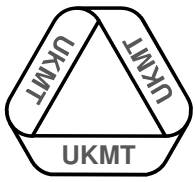
T is the number you will receive.

The diagram shows a shaded triangle bounded by the line $y = \frac{1}{2}x$, the line $x + y = T$ and the x -axis.



The shaded area has size $(k + \frac{2}{3})$ square units, where k is an integer.

Write down the value of k .

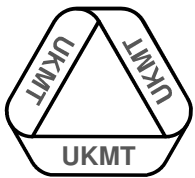


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C1

X is the sum of the *even* numbers from 1 to 100 inclusive.

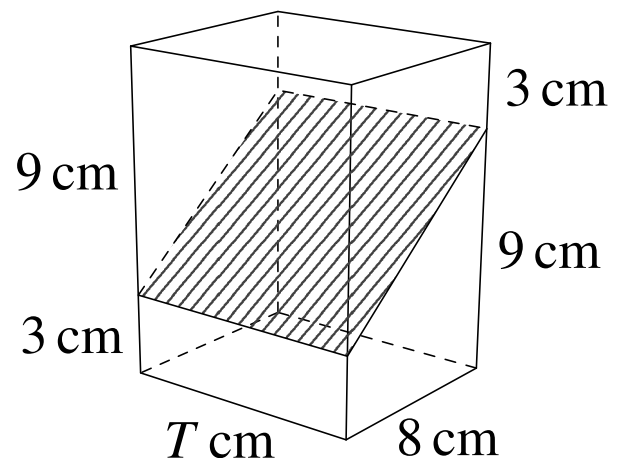
Y is the sum of the *odd* numbers from 1 to 100 inclusive.

Pass on the value of $X - Y$.

C3

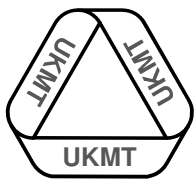
T is the number you will receive.

A cuboid measuring $8\text{ cm} \times T\text{ cm} \times 12\text{ cm}$ is cut into two equal prisms, as shown.



Each prism has two faces which are trapeziums, and has total surface area $P\text{ cm}^2$.

Pass on the *sum of the digits* of P .



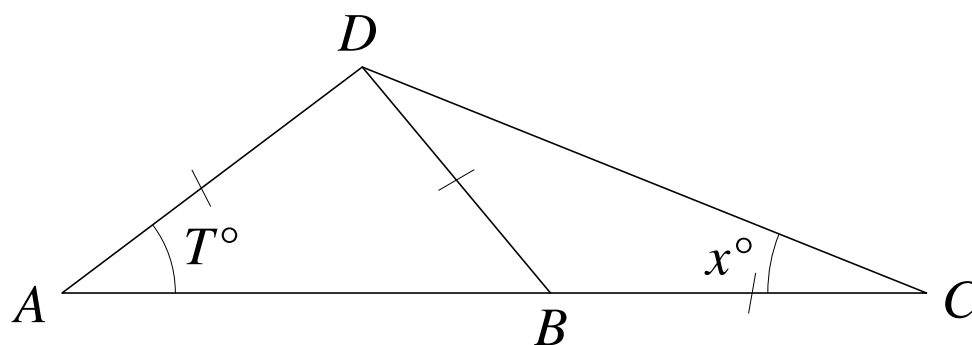
T is the number you will receive.

C2

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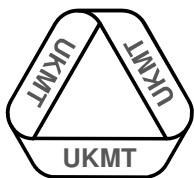
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ABC is a straight line. $AD = DB = BC$.

Pass on the value of $\frac{1}{5}x$.

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T is the number you will receive.

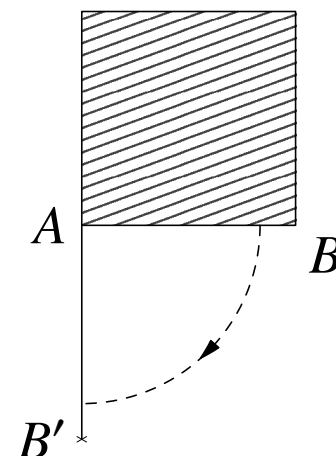
C4

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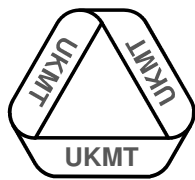
Tilly has a T cm \times T cm paint-covered square lying on a piece of paper. She rotates it 90° clockwise around corner A , so that B moves to B' . As the square rotates it transfers paint to the paper.



The total painted area on the paper after this quarter turn is $(a + b\pi)$ cm².

Write down the value of $a + b$.

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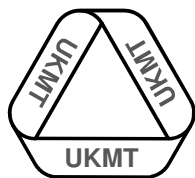


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D1

$$\frac{20}{17} + \frac{17}{20} = \frac{A}{B},$$

where $\frac{A}{B}$ is a fraction in its lowest terms.

Pass on the value of $\sqrt{A - 2B}$.

D3

T is the number you will receive.

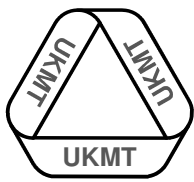
In Miss Sunshine's class there are T pupils.

Half of those who are happy wear glasses. Half of those who are not happy wear glasses.

80% of those who wear glasses are happy.

There are P pupils who are not happy and do not wear glasses.

Pass on the value of P .

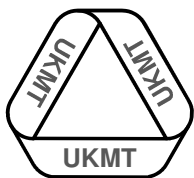


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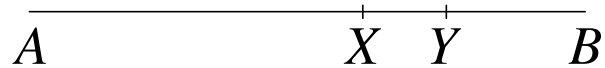
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D2

T is the number you will receive.

In the diagram, X divides the line AB in the ratio $3 : 2$ and Y divides AB in the ratio $3 : 1$.



$AB = K$ cm and $XY = T$ cm.

Pass on the value of K .

D4

T is the number you will receive.

She and he raced each other, and each walked half the distance and ran half the distance.

She walked at R km per hour. He walked at $2T$ km per hour.

She ran twice as fast as she walked. He ran three times as fast as he walked.

She and he started, and finished, at exactly the same time.

Write down the value of R .

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<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