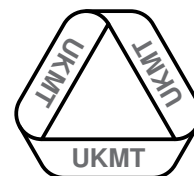
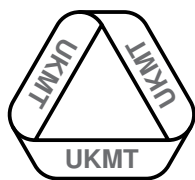


Instructions

- There are four rounds to this Shuttle Round. Each round contains a set of four questions.
- Each round lasts 8 minutes.
- *Three* marks are awarded for every answer correct on the first attempt or one mark is awarded if correct on subsequent attempts. A bonus of three marks is awarded if there is a correct set of answers after 6 minutes.
- Your team should split into pairs. One pair will be given questions 1 and 3, and the other pair will be given questions 2 and 4.
- You are not allowed to talk to your other pair except through the supervising teacher.
- Question 1 can be solved independently of the other questions. The answer to this question should be written on the RESPONSE SHEET and passed to your other pair via your supervising teacher. The second pair will need the answer to question 1 to be able to calculate the answer to question 2, although some work can be done on question 2 before the answer to question 1 is received. The answer to question 1 is referred to as T (for example, “ T is the number you will receive”). The first pair can then do some work on question 3, but will need the answer to question 2 to finalise their answer, and so on.
- Once question 4 has been answered, or if the time is up, the



RESPONSE SHEET should be handed to the supervising teacher for marking.



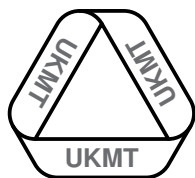
A1

Pass on the value of $(1 + 2) \times 3 + (4 + 5) \times 6 + (7 + 8) \times 9$.

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A3

T is the number you will receive.

The largest angle in a rhombus is $(2T - 180)^\circ$.

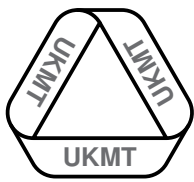
The smallest angle in this rhombus is X° .

Pass on the value of X .

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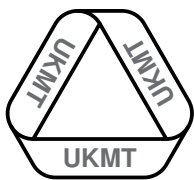
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A2

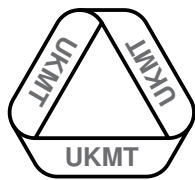
T is the number you will receive.

Pass on the value of $\frac{T}{2} + \frac{T}{9} + \frac{T}{11}$.

A4

T is the number you will receive.

The volume of a cube is $(2T - 100)$ cubic centimetres.
Write down the surface area of the cube in square centimetres.



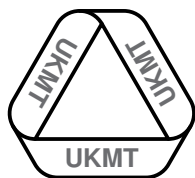
B1

Pass on the smallest prime number that is the sum of three different prime numbers.

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B3

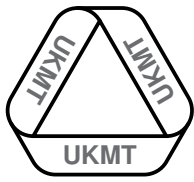
T is the number you will receive.

Pass on the value of $\sqrt{2T + 3}$.

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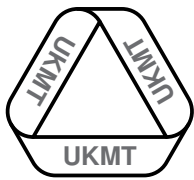
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B2

T is the number you will receive.

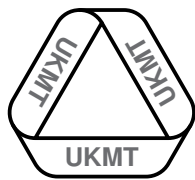
Pass on the sum of the three smallest prime numbers greater than *T*.

B4

T is the number you will receive.

$(T - 2) \times (T + 2) + X$ equals the number of days in a non-leap year.

Write down the value of *X*.



C1

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The value of

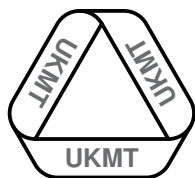
$$1 \times 1p + 2 \times 2p + 5 \times 5p + 10 \times 10p + 20 \times 20p + 50 \times 50p$$

is T pence.

Pass on the value of T .

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C3

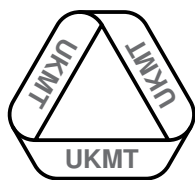
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T is the number you will receive.

Pass on the difference between the product of the digits of T and the sum of the digits of T .

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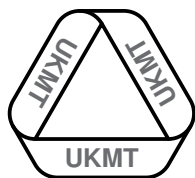
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C2

T is the number you will receive.

Ann receives T pounds and decides to keep £999 for herself.

She then divides the remainder equally between her three sisters.

The amount they each receive is X pounds.

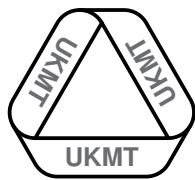
Pass on the value of X .

C4

T is the number you will receive.

There are two different isosceles triangles in which at least one of the angles is $(360 - T)^\circ$.

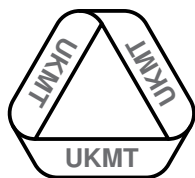
Write down the sum, in degrees, of the three different angles that occur in these triangles.



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D1

Andy leaves his house at 08:25 and cycles, at an average speed of 12mph, towards Beverley's house.

On the same day, Beverley leaves her house at 08:55 and drives, at an average speed of 30mph, towards Andy's house.

They meet at 10:15. When they meet the distance they have travelled between them is T miles.

Pass on the value of T .

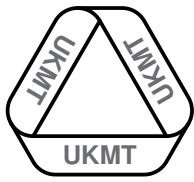
D3

T is the number you will receive.

On a six-sided die the sum of the numbers on opposite faces equals 7.

X is the number on the opposite face to the number $(T + 1) \times (T - 1) \div 16$.

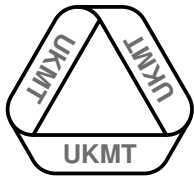
Pass on the value of X .



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D2

T is the number you will receive.

X is the number of months in a year that each have $\frac{T}{2}$ days in them.

Pass on the value of X.

D4

T is the number you will receive.

Write down the lowest common multiple of $4T$, $5T$ and $6T$.

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