UNITED KINGDOM MATHEMATICS TRUST

MINI RELAY ROUND

- There are 4 rounds to this Mini Relay. 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 awarded if correct on subsequent attempts. A bonus of *three* marks is awarded if there is a correct set of answers after 6 minutes. Further instructions for scoring are provided in the Answer Booklet.

- 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 answer record 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 (e.g. "*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 questions should be handed to the supervising teacher for marking.

Mini Relay Score Sheet

School Name: _____   **School Number** _____

Round A			Round B		
A1	3	1	**B1**	3	1
A2	3	1	**B2**	3	1
A3	3	1	**B3**	3	1
A4	3	1	**B4**	3	1
Bonus	3		**Bonus**	3	
Total			**Total**		
Round C			Round D		
C1	3	1	**D1**	3	1
C2	3	1	**D2**	3	1
C3	3	1	**D3**	3	1
C4	3	1	**D4**	3	1
Bonus	3		**Bonus**	3	
Total			**Total**		
Final Total:					

Mini Relay Answer Record Sheet

Question A1	**Question B1**
Question A2	**Question B2**
Question A3	**Question B3**
Question A4	**Question B4**

Question C1	**Question D1**
Question C2	**Question D2**
Question C3	**Question D3**
Question C4	**Question D4**

A1. Work out the value of 9 + 87 + 6 + 5 + 43 + 2 + 1.

Pass on the sum of the digits of your answer.

A3. *T represents the number you will receive.*

Pass on the value of: $\dfrac{T}{2} + \dfrac{2}{T} + \dfrac{4}{5}$.

A2. **_T represents the number you will receive._**

Pass on the value of $\sqrt{9T + 19}$.

A4. **_T represents the number you will receive._**

How far do I travel in 2*T* hours if my speed is

(*T* + 6) kilometres per hour?

Give your answer in kilometres.

B1. Pass on the value of the sum of all the multiples of 7 between 20 and 40.

B3. ***T represents the number you will receive.***

Pass on the value of the lowest common multiple of *T* and *T* + 3.

B2. ***T represents the number you will receive.***

T is the area of a right-angled triangle where one of the sides making the right angle is 14cm.

What is the length of the other side making the right angle?

Pass on this length in cms.

B4. ***T represents the number you will receive.***

Our train journey to our holiday destination took 2*T* + 35 minutes. We arrived at 18:20.

At what time did we set out?

C1. What is the surface area, in cm^2, of a cuboid that is 2cm wide, 3cm high and 5cm long?

Pass on the sum of the digits in your answer.

C3. ***T represents the number you will receive.***

In a local theatre the front row has 2*T* seats. Each subsequent row has one more seat than the previous row. The back row has 3*T* + 1 seats.

Pass on the number of rows in the theatre.

C2. ***T represents the number you will receive.***

Pass on the value of a half of *T* plus a quarter of *T* plus an eighth of *T*.

C4. ***T represents the number you will receive.***

What is $\sqrt{T^2 + 2T + 1}$ divided by 10?

D1. Three consecutive even whole numbers add up to 24.

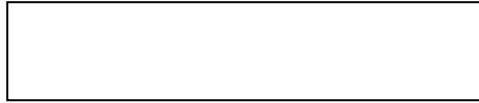Pass on the square of the middle number.

D3. *T represents the number you will receive.*

Pass on the number of prime numbers between

T and *T* + 20.

D2. **_T represents the number you will receive._**

This rectangle has an area of Tcm^2.

The length is 4 times the width.

Pass on the perimeter of the rectangle in cm.

D4. **_T represents the number you will receive._**

Three of the angles of a quadrilateral are:

$9T + 15$, $27T + 30$, and $31T - 50$

How many degrees are there in the fourth angle?