



UNITED KINGDOM MATHEMATICS TRUST

GROUP ROUND

- Time allowed: 45 minutes.
- There are 15 questions to try to answer in the time allowed.
- Each question is worth *four* marks. A question is marked either correct or incorrect – no partial marks are awarded.
- Some questions are easier than others!
- You will have to decide your team's strategy for this group competition. Do you split up so that individuals work on a few questions each, or do you work in pairs on a greater number of questions? Working all together on all the questions may well take too long. You decide!
- There is only one answer sheet per team. Five minutes before the end of the time you will be told to finalise your answers and write them on to the answer sheet. This answer sheet is the only thing that will be marked.
- Answers should be in their simplest form where appropriate.

Answer Sheet (Ignore Units)

School Name _____

School Number _____

<u>Question 1</u>	<u>Question 2</u>
<u>Question 3</u>	<u>Question 4</u>
<u>Question 5</u>	<u>Question 6</u>
<u>Question 7</u>	<u>Question 8</u>
<u>Question 9</u>	<u>Question 10</u>
<u>Question 11</u>	<u>Question 12</u>
<u>Question 13</u>	<u>Question 14</u>
<u>Question 15</u>	Award four points for each correct answer. <u>Total:</u>

Question 1

Two positive whole numbers add up to 35 and equal 96 when they are multiplied together.

What is the sum of the squares of these two numbers?

Question 2

In a recent class quiz, Alicia answered all of the forty questions.

A correct answer scored three points and an incorrect answer meant that you lost one point.

Alicia scored 60 points.

How many questions did Alicia get correct?

Question 3

What is the mean (average) of the first ten prime numbers?

Question 4

A new retail outlet is to be built on a plot that is 30 metres wide and 75 metres deep.

The retail space must be 600 m^2 and three-fifths of the whole plot must be used for customer parking.

How many square metres will be available to provide access, and other staff and customer facilities, on the remainder of the plot?

Question 5

6 ticks are the same as 5 tacks.

8 tacks are the same as 9 toes.

How many ticks are there in 180 toes?

Question 6

There were 256 pupils who entered the 'City Schools Doubles' Knockout Tennis Tournament.

How many matches were played before the two pairs that reached the final were known, assuming that no-one dropped out?

Question 7

The perimeter, in cms, of the square face of a cube is equal to half the area, in cm^2 of the square face.

What is the total length, in cms, of all the edges of the cube?

Question 8

Ursula, Kevin, Tom and Petra sign up for a keep fit class lasting 20 weeks.

It is agreed that each week the £24 weekly cost is to be shared by those of the four that attend the class that week.

Petra attended the class every week. All attended the class every week, except that on six occasions only 3 people attended, and on four occasions only 2 people attended.

How much did Petra pay, in total, for the entire keep fit class?

Question 9

Charlotte and Eugenie share a box of chocolates which has the same number of milk, caramel, and strawberry flavoured chocolates.

Charlotte has $\frac{5}{8}$ of the caramels and $\frac{1}{4}$ of the strawberry chocolates.

Charlotte and Eugenie share the milk chocolates equally.

Eugenie has 2 more chocolates than Charlotte.

How many chocolates were in the box?

Question 10

I have forgotten my friend's phone number.

I know it begins '74', is six-digits in all, and ends with an even, non-zero, digit.

The three remaining digits are 5, 5, and 3.

How many possible phone numbers are there?

Question 11

My two brothers and I all have the same birthdays but none of us were born in the same year. My eldest brother is one year older than me and my other brother is three years younger.

How old was I when my elder brother was three times as old as my younger brother?

Question 12

In the recent schools' basketball final, 'Castle' beat 'Peters' 85 – 81.

Each team scored 'baskets' which were worth either 2 points or 3 points.

One team scored the same number of 2 and 3 point 'baskets' while the other team scored three times as many 2 point 'baskets' as 3 point 'baskets'.

How many 'baskets' were scored in the whole match?

Question 13

On a recent seven-day school trip, the 21 pupils in the class were accompanied by five adults.

The total cost of the trip was £11,400.

Each adult paid £200 more than each pupil.

How much did each pupil pay for the trip?

Question 14

Lesley is training for a marathon.

This week, on Monday, she ran 10km.

On each of the following four days to Friday she ran a few kilometres more than the day before. The number of extra kilometres was the same each time.

On those five days Lesley ran 110km in total.

By how many kilometres did Lesley increase the distance she ran on each day after Monday?

Question 15

In the square below 'X' marks the spot where you finish.

In the other squares terms such as:

'2R' means 'move two squares to the right'

'1U' means 'move one square up'

Write down the row and column of the starting square if you visit each square only once and finish on the square marked with the 'X'

	Column 1	Column 2	Column 3	Column 4
Row 1	2R	2R	3D	X
Row 2	2R	2R	1D	2D
Row 3	2U	2U	1L	3L
Row 4	2U	2U	1L	3L