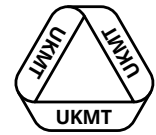
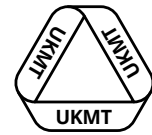


## Instructions

- Time allowed: 20 minutes.
- There are 20 questions to try to answer in the time allowed.
- *Three* marks are awarded for every correct answer written on the RESPONSE SHEET. An answer is marked either correct or incorrect so no partial marks are given.
- Marks are not awarded for correct answers that have not been written on the RESPONSE SHEET, so make sure you write your answers on this. Units can be ignored.
- You will have to decide your team's strategy for this speed test and can organise yourselves to answer the questions however you want as quickly as possible.

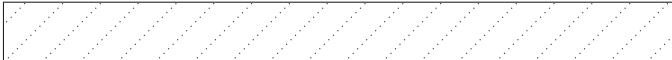


1. A factor of a number is a number which divides that number perfectly. 10 has 4 factors: 1, 2, 5 and 10. How many of the numbers from 1 to 10, including 1 and 10, have an even number of factors?
2.  $00 = A$ ,  $01 = B$ ,  $02 = C$ , ...  $25 = Z$ , and  $000102$  means  $ABC$ . Use this method of coding to work out the following message: "151100081319042319".
3. The smallest of five numbers is 14, the median of the five numbers is 16 and the mode is 18. What is the range of the numbers?
4. 12 and 16 have three common factors. These are 1, 2 and 4 - this is because 1, 2 and 4 divide 12 and 16 without a remainder. How many common factors do 105 and 75 have?
5. In a straight line race, when the winner crossed the finish line, the person in second position had only completed half of the race distance. The person in third place had only completed half the distance travelled by the person in second place. The person in third place was only 190m from the start line. What was the total race distance?
6. How many diagonals are there in a regular octagon?
7. Three students guess the size of an angle drawn on paper. Grant guesses 8 degrees too big. Phil guesses 15 degrees less than Grant. Tiffany's guess is 3 times Phil's guess. Tiffany guessed 72 degrees. What is the actual size of the angle?
8. My birthday present cost £1 plus half its total cost. How much did the birthday present cost?
9. On an analogue clock, the hour hand turns through 30 degrees every hour. How many degrees will it move through from 1:15pm to 4:45pm?



10. What is the smallest number that leaves a remainder of 1 when you divide it by 2, 3 and 5?
11. Edd and Jess have 19 coins between them. Edd gives Jess 2 coins, after which Edd only has 1 more coin than Jess. How many coins did Jess have to begin with?
12. A car uses 8 litres of petrol to travel 48 km. How far can the car travel on 20 litres?
13. Work out  $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5}$ .
14. What is the smallest prime number that is also the sum of three different prime numbers?
15. I type 50 words per minute. How long will it take to type 30 000 words? Give your answer in hours and minutes.
16. Work out  $111 + 222 + 333 + 444 + 555 + 666$ .
17. What two-digit prime number is also a factor of 184?
18. In one day, 50% of my spare time is spent playing games, 25% of my spare time is spent with friends, 10% of my spare time is spent reading, which leaves me with 36 minutes to do other things. How much spare time do I have in one day? Give your answer in hours and minutes.
19. A permutation of a number is a reordering of its digits. For example, 3241 is a permutation of 1234. What is the sum of all the permutations of 123? 123 is included in the sum.
20. I'm thinking of a two-digit number. It is 2 more than a multiple of 3 and 3 more than a multiple of 7. The sum of its digit sum is 14. What number am I thinking of?

TEAM NUMBER 

SCHOOL NAME 

1	6	11	16
0 3	0 3	0 3	0 3
2	7	12	17
0 3	0 3	0 3	0 3
3	8	13	18
0 3	0 3	0 3	0 3
4	9	14	19
0 3	0 3	0 3	0 3
5	10	15	20
0 3	0 3	0 3	0 3

Award 3 marks for a correct answer.  
 Circle the mark awarded for each question and cross out the other.

FINAL SCORE /60 