

GROUP COMPETITION INSTRUCTIONS

- Your team will have 45 minutes to answer 10 questions. Each team will have the same questions.
- Each question is worth 6 points. However, some questions are easier than others!
- You will have to decide your team's strategy for this group competition.
- 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.



Question 1

Pippa is visiting her grandparents. She spends half the time playing, a third sleeping and the remaining 35 minutes eating. How long is her visit?



Question 2

Taking $A = 1$, $B = 2$, $C = 3$ etc. any word can be given a word value equal to the sum of the values of its letters.

For example ALGEBRA has a word value of

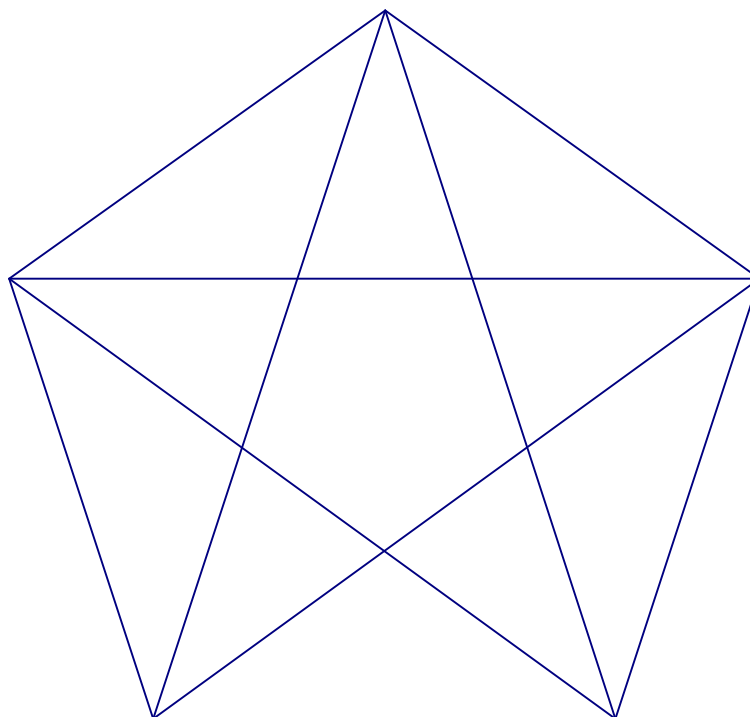
$$1 + 12 + 7 + 5 + 2 + 18 + 1 = 46.$$

Arrange the words ONE, TWO, THREE, FOUR and FIVE in **ascending** order of their word values.



Question 3

In total how many triangles of any size are there in the diagram?



Question 4

Sarah chooses, at random, two **different** single digit numbers, not including zero. She then works out their product. What is the probability that the product is a single digit number? Please give your answer as a fraction in its lowest terms.



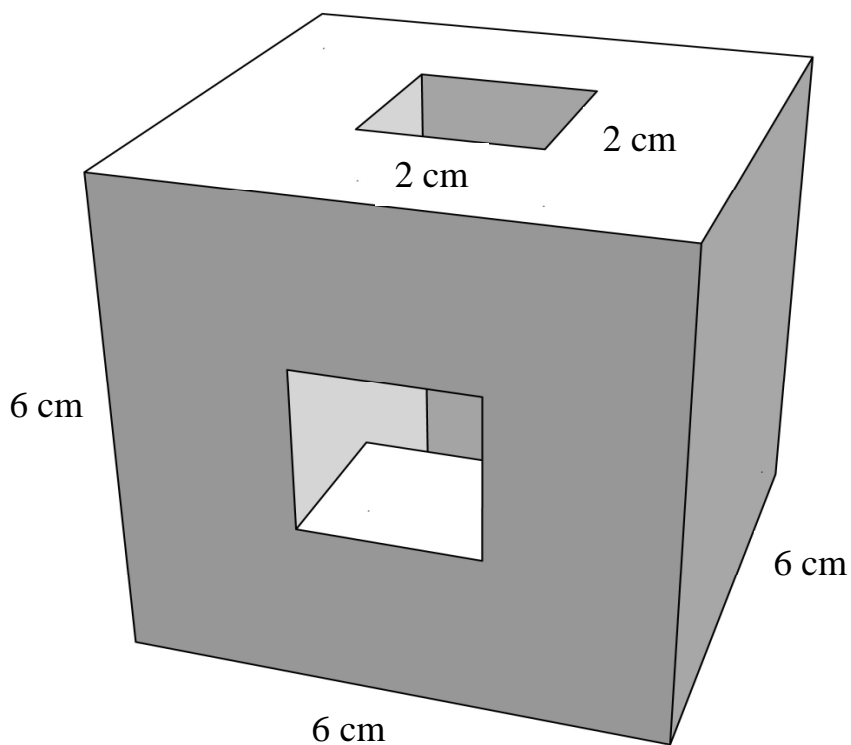
Question 5

Iain won equal numbers of gold, silver and bronze medals for swimming. In total Lynda won 45 gold, silver and bronze medals. Compared with Lynda, Iain won 10 more golds, the same number of silvers and 7 fewer bronzes. How many golds did Lynda win?



Question 6

Two identical square-shaped holes have been drilled passing all the way through a solid cube, as shown. The holes are in the centres of the faces of the cube. What is the total surface area of the resulting solid?



Question 7

Two adjacent pipes supply fresh water to a pond. The wider pipe will fill a container in 40 seconds and the thinner pipe will fill the same container in 1 minute. How many seconds would it take to fill this container when both pipes are used together?



Question 8

The number 2652 is a “13-pair” number: every pair of consecutive digits (26, 65 and 52) forms a multiple of 13.

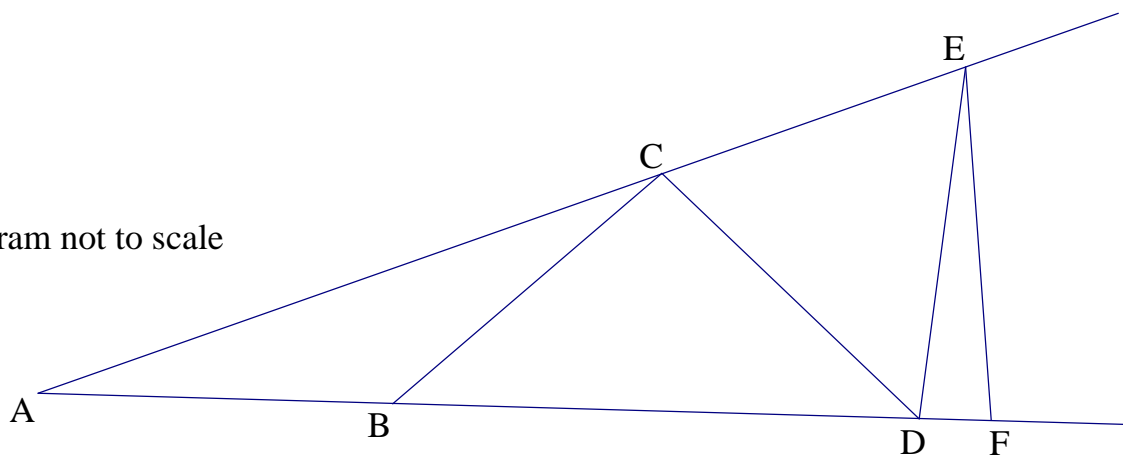
In a similar way, the 100-digit number N is a “14-pair” number. The first digit of N is 9, what is the last digit of N ?



Question 9

If $AB = BC = CD = DE = EF$ and angle $AEF = 75^\circ$, what is the size of angle EAF ?

Diagram not to scale



Question 10

The pages in a book are numbered in the usual way, starting with page 1. Unfortunately, due to a printing error, pages 97 to 102 have been included twice. If the total number of digits used for the page numbers is 318, what is the last page number in the book?



UKMT Team Maths Challenge

GROUP answer sheet

Team number

School name

1. Time	2. Words in ascending order
3. Number of triangles	4. Probability as a fraction in its lowest terms
5. Number of golds	6. Surface area cm^2
7. Time to fill container seconds	8. Last digit
9. Angle EAF degrees	10. Last page number

Award 6 points for each correct answer.

TOTAL SCORE = _____

