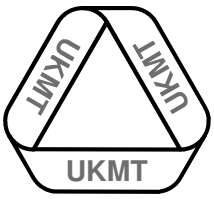


TEAM MATHS CHALLENGE
2015

NATIONAL FINAL

SUPERVISOR'S BOOKLET

Please ensure that students do not have access to this booklet, and take care to hold it so that answers cannot be seen.

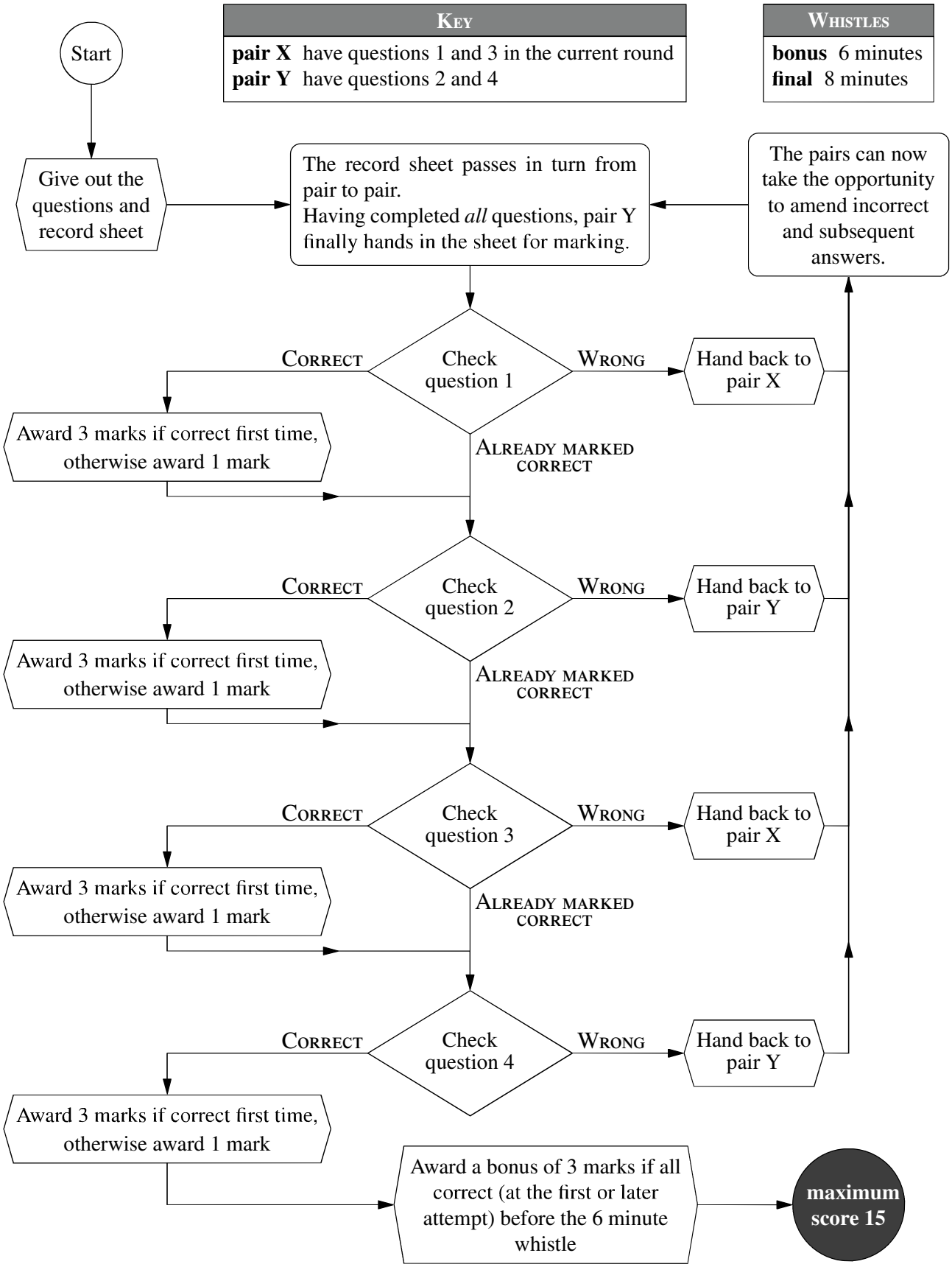
Please ensure that students use blue or black ink to write their answers; teachers are asked to use red ink for marking.

A1 11	**B1** 21	**C1** 20	**D1** 12
A2 8	**B2** 8	**C2** 8	**D2** 18
A3 4	**B3** 12	**C3** 6	**D3** 36
A4 24	**B4** 8	**C4** 12.5 or $12\frac{1}{2}$ or $\frac{25}{2}$	**D4** 16

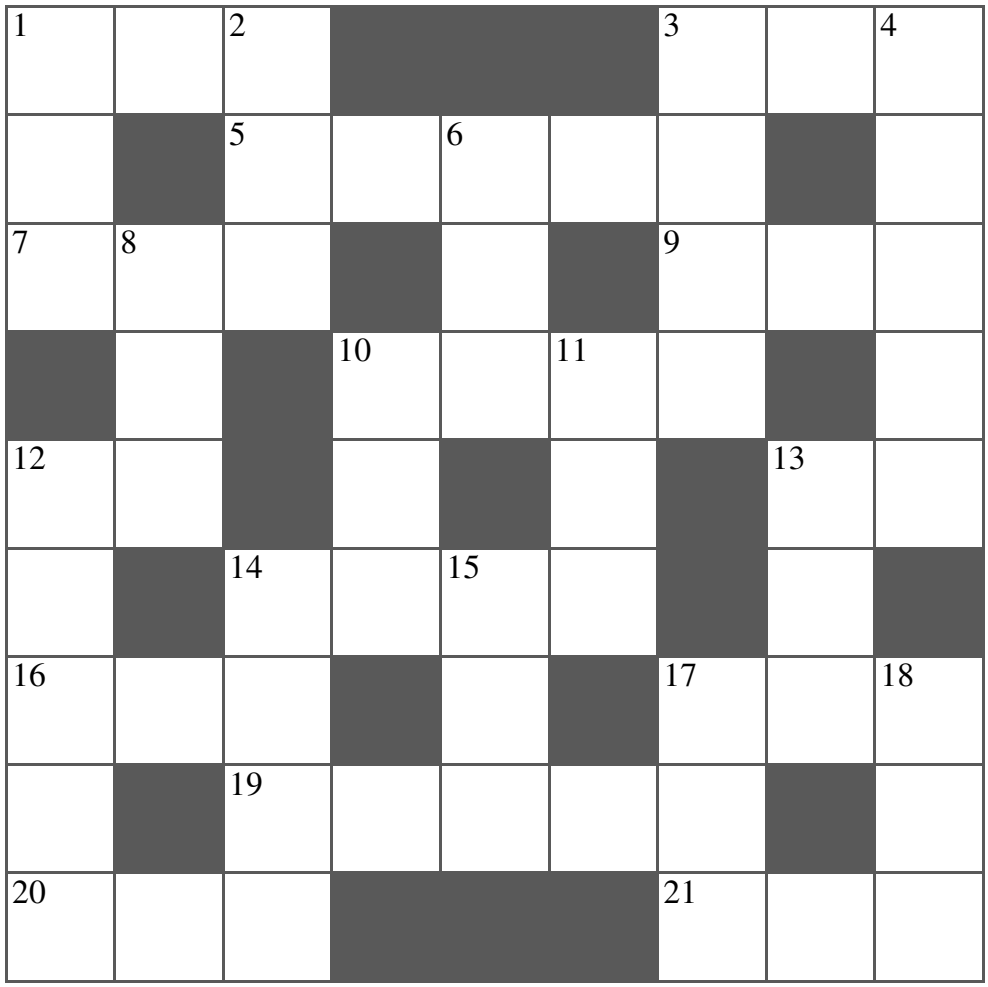
On the RESPONSE SHEET:

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.

The flowchart explains the order in which questions should be marked.



Crossnumber



Across

1. A factor of 3 Across (3)
3. 13 Down plus 16 Across (3)
5. 16 Across multiplied by 10^2 plus 13 Down (5)
7. A cube number (3)
9. A Fibonacci number (3)
10. The product of five consecutive prime numbers (4)
12. Twice the sum of the number of vertices and edges of a cube (2)
13. The highest common factor of 10 Across and 14 Down (2)
14. The mean of 3 Down and 10 Across (4)
16. A factor of 10 Across (3)
17. The sum of ten consecutive Fibonacci numbers (3)
19. The product of the digits of this palindromic number is 2^{10} (5)
20. The difference between 10 Across and 14 Down (3)
21. This number is the sum of all the 2-digit numbers made from its digits (3)

Down

1. The product of the digits of 9 Across (3)
2. The sum of the first ten prime numbers (3)
3. The sum of 10 Across and 14 Down (4)
4. The sum of its digits is equal to 13 Across (5)
6. 20 Across minus 9 Across (3)
8. Seven multiplied by 12 Across (3)
10. Twice a square Fibonacci number (3)
11. The difference between 16 Across and 17 Down (3)
12. The product of the digits of this number is 2^6 (5)
13. A square number (3)
14. The product of seven consecutive Fibonacci numbers (4)
15. Twice 9 Across (3)
17. A palindromic square (3)
18. The product of the sum of the digits in the third column and the sum of the digits in the seventh row (3)

1 1	1	2 1	■	■	■	3 5	5	4 5
4	■	5 2	3	6 4	2	4	■	9
7 7	8 2	9	■	3	■	9 3	7	7
■	8	■	10 2	3	11 1	0	■	9
12 4	0	■	8	■	1	■	13 3	0
1	■	14 3	8	15 7	0	■	2	■
16 2	3	1	■	5	■	17 1	4	18 3
1	■	19 2	8	4	8	2	■	4
20 8	1	0	■	■	■	21 1	3	2

Marking Instructions—a reminder

- Pairs may only communicate through the teacher, and only to request that the other pair works on a particular clue.
- When a pair enters an answer in the Answer Grid, the teacher checks each digit of the answer:
  - if it is correct, place a tick in the dotted circle and award one mark
  - if it is wrong, cross it out, write in the correct digit, and place a cross in the dotted circle
  - the correct answer is then shown to both pairs so that they are up-to-date.
- A pair may enter just one digit if they wish, rather than a complete answer.
- A pair may sacrifice a square, by guessing, if they wish.

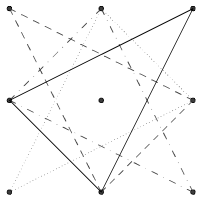
Station 1

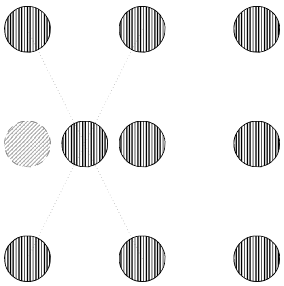
251

Station 5

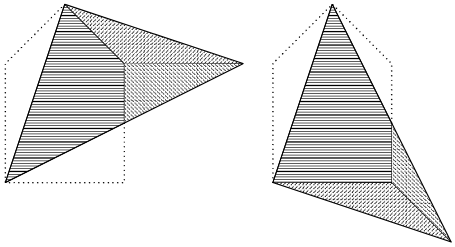
(a) 140°, 160° (b) 144°, 156° (c) 108°, 162°

Station 2

(a) 

(b) 

Station 6

Examples: 

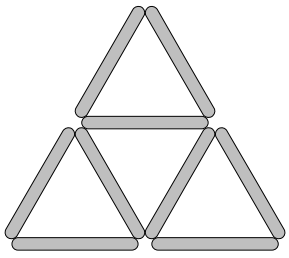
Station 3

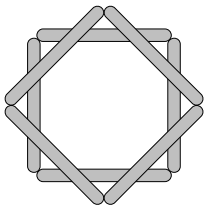
5102

Station 7

3 999 960

Station 4

(a) 

(b) 

Station 8

Three equal side totals

On the RESPONSE SHEET: Circle the mark awarded for each question and cross out the others.

TEAM NUMBER SCHOOL NAME

A1 20 0 2	**A6** (2,0) 0 2	**A11** 161 0 2
B1 15 boxes 0 2	**B6** $\frac{111}{10}, \frac{100}{9}, \frac{89}{8}, \frac{78}{7}$ 0 2	**B11** 61.5 or $61\frac{1}{2}$ 0 2
A2 158 0 2	**A7** 35 minutes 0 2	**A12** $\frac{71}{9}, \frac{79}{10}, \frac{87}{11}, \frac{95}{12}$ 0 2
B2 4 mm 0 2	**B7** 23 hours 0 2	**B12** 88 cm^2 0 2
A3 0.75 or $\frac{3}{4}$ kg 0 2	**A8** 42 0 2	**A13** 4950 cm^2 0 2
B3 (3,7) 0 2	**B8** 20 degrees 0 2	**B13** 20, 120 (or 120, 20) 0 2
A4 12 boxes 0 2	**A9** 7 : 2 0 2	**A14** 6 0 2
B4 45.40 £ 0 2	**B9** 80 0 2	**B14** 4 cm 0 2
A5 42 degrees 0 2	**A10** 95 £ 0 2	**A15** 40 0 2
B5 193 0 2	**B10** 15 years 0 2	**B15** 87 seconds 0 2

Correct answers score 2 points: circle 2 or 0 for each question and cross out the other number.

At the end of the round, draw a line under the last question attempted.

FINAL SCORE /60

BACK

PAGE