



Regional 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.



Mini-Relay Score Sheet

School number:

School name: _____

Round A			Round B			Round C		
A1	2	1	B1	2	1	C1	2	1
A2	2	1	B2	2	1	C2	2	1
A3	2	1	B3	2	1	C3	2	1
A4	2	1	B4	2	1	C4	2	1
Bonus	2		Bonus	2		Bonus	2	
Total	<input type="text"/>		Total	<input type="text"/>		Total	<input type="text"/>	

Round D			Round E			Round F		
D1	2	1	E1	2	1	F1	2	1
D2	2	1	E2	2	1	F2	2	1
D3	2	1	E3	2	1	F3	2	1
D4	2	1	E4	2	1	F4	2	1
Bonus	2		Bonus	2		Bonus	2	
Total	<input type="text"/>		Total	<input type="text"/>		Total	<input type="text"/>	

Grand Total:



Mini-Relay : Marking Instructions – a reminder

Teams can hand in the Answer Sheet only when they have an answer to all four questions. The teacher starts marking at Q.1 and stops marking at the first incorrect answer, ignoring any subsequent answers. The teacher circles 2 marks on the Score Sheet by each correct answer and crosses out the 2 for the first incorrect answer. The Answer Sheet is then returned to the pair who gave that incorrect answer.

When the Answer Sheet is handed in again only 1 mark is available for any question previously answered incorrectly. Teams may have as many attempts as they wish at such a question. Correct answers to later questions will still earn 2 marks each.

There will be a whistle after 4 minutes. Handing in an Answer Sheet with four correct answers before this whistle will earn a bonus of 2 marks in addition to the maximum of 8 marks available for the individual answers. This bonus is circled on the Score Sheet.

A final whistle is blown after 6 minutes. Teams must stop working and hand in their Answer Sheet for marking.

MINI-RELAY ANSWERS

A1	12
A2	5
A3	1
A4	2

D1	8
D2	4
D3	12
D4	84(°)

B1	8
B2	3
B3	4
B4	14

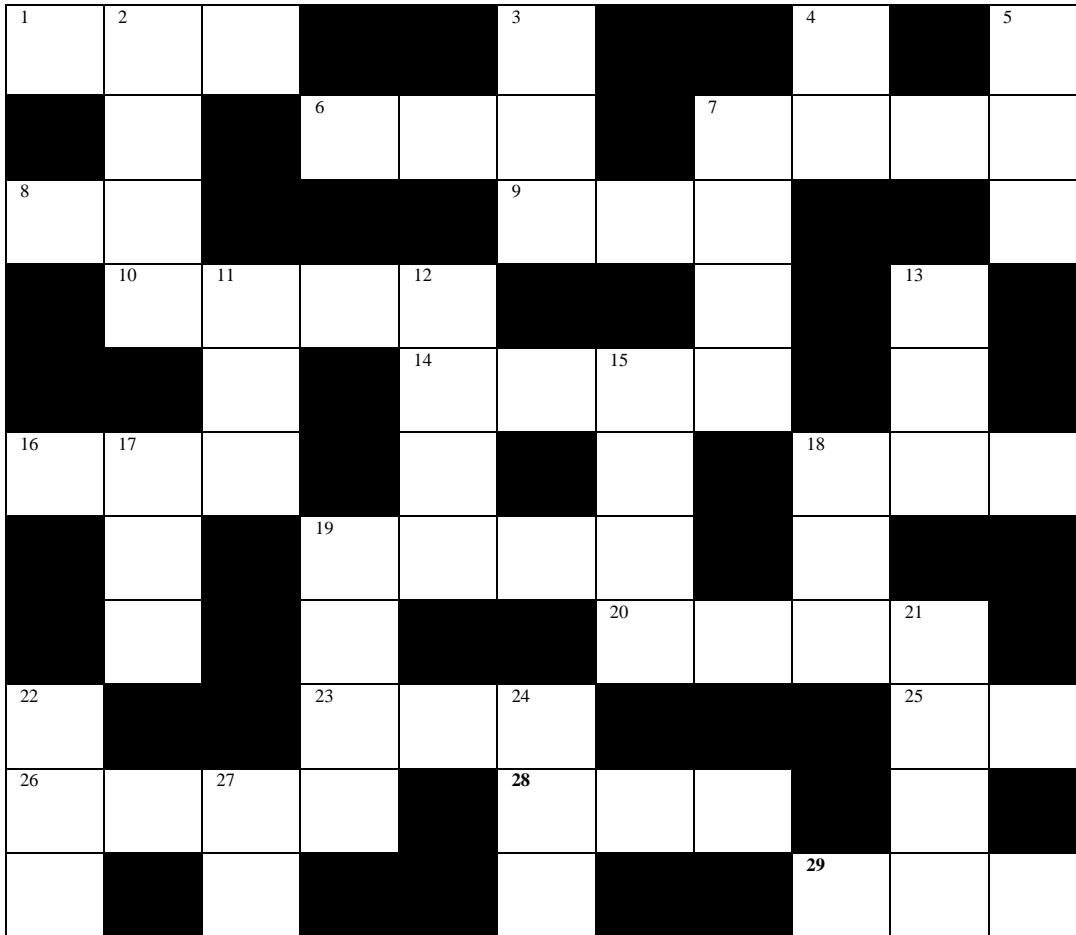
E1	20
E2	2
E3	4
E4	48(°)

C1	2
C2	5
C3	6
C4	24(°)

F1	3
F2	9
F3	-2
F4	10



Senior Team Maths Challenge 2009



Across

- 1 Both a square and a cube
- 6 $\frac{1}{2} p^2 (p+1)$ where p is prime
- 7 Solution to $x^2 - 2009x + 14014 = 0$
- 8 Cube
- 9 Prime squared
- 10 One less than a multiple of eleven
- 14 Number divisible by two and seven;
19 Across minus 5 Down
- 16 Fourth power
- 18 Three times 6 Across
- 19 One more than a multiple of nine
- 20 Multiple of either four or nine
- 23 The mean of 9 Across, 16 Across and 23 Across
is 16 Across
- 25 Sum of two distinct squares
- 26 4 Down plus twice 11 Down
- 28 Half the product of two consecutive integers,
also a multiple of seven
- 29 Odd number, four more than a multiple of 25
Across

Down

- 2 Power of two
- 3 Prime, one less than a multiple of 4 Down
- 4 Solution to $x^4 - 116x^2 + 1600 = 0$
- 5 One more than a square, three less than a cube
- 7 Multiple of seven, its digit sum is prime
- 11 One more than a multiple of 5 Down, greater
than 3 Down
- 12 Mean of 2 Down, 13 Down and 21 Down
- 13 One more than three times 3 Down
- 15 Product of two numbers differing by two
- 17 24 Down minus a factor of 14 Across
- 18 Twice a prime squared
- 19 Remainder when 19 Down is divided by 13
Down is 6 Across
- 21 Fibonacci number where consecutive digits
differ by one
- 22 Palindrome, twice a prime
- 24 Twelve times a prime
- 27 Three times a factor of 18 Across



CROSSNUMBER

Completed Grid

1	2			3		4		5			
7	2	9		2		1		1			
	0		6	1	9	6	7	2	0	0	2
8					9	6	1				2
	10	11		12				13			
	8	8	4	3		0		8			
				14		15					
		5		2	6	6	0		0		
16	17						18				
6	2	5		0		7		5	8	8	
			19								
	8		2	7	8	2		7			
							20		21		
	3		6			3	1	8	6		
22			23		24				25		
8			2	8	9				7	3	
26		27			28						
1	7	2	0		4	0	6		6		
								29			
8		1			8			9	5	3	

Marking Instructions – a reminder

Pairs may only communicate through the teacher, and only to request that the other pair work 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, tick it and award one mark; if it is wrong, cross it out and enter the correct digit. 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.



GROUP ROUND ANSWERS

1. Value of y : 1	2. Area of quadrilateral: 3.5 units^2
3. $a + b + c + d =$ 11	4. Number to right of 2009: 2100
5. Distance from A to C : 13 cm	6. Radius: $\frac{(2\pi + 8)}{(\pi + 4\sqrt{3})} \text{ cm}$
7. Value of n : 63	8. Number of cards: 610
9. Three digit number: 127	10. Area of triangle CDF : 56 cm^2

6 points for each correct answer.

TOTAL SCORE (/60)= _____