Surname ..... **Candidate number** .....

First name .....

Current school .....

The Manchester Grammar School

Founded 1515

Entrance Examination 2011

Arithmetic Paper 1

30 minutes

Do not open this booklet until told to do so
Calculators may not be used

Write your names, school and candidate number in the spaces provided at the top of the page.

You have 30 minutes for this paper which is worth 20 marks.

Answer all the questions, attempting them in order and writing your answers clearly. If you find that you cannot answer a question straight away leave it blank and return to it later if you have time. Do not leave blank answer spaces, make the best attempt at an answer that you can.

If you need to change an answer cross it out neatly and write the new answer alongside the box.

	Marker 1	Marker 2	**Agreed mark**
Number correct			
Number wrong			

1. Work out 483 + 249.

1	

2. Work out 187 × 60.

2	

3. Work out $22\frac{1}{2} \div 5$.

3	

4. Write in figures the number one million ten thousand and one.

4	

5. What is the product of the sum of 8 and 4 with the difference of 3 and 12?

5	

6. How many 2-digit numbers contain at least one 4?

6	

7. A baby crocodile grows by $\frac{1}{5}$ of its length every week. Today it is 30cm long. How long was it last week?

7	cm

8. Rodger has seven cubes, each one with edges 1 cm long. He glues one face of each of six of the cubes, and sticks them, one to each face of the seventh. He then paints the shape he has made. What area is painted?

8	cm^2

9. Neil drives his car for 20 minutes at 45 kilometres per hour. Stephen does the same journey at a speed of 30 kilometres per hour. How long did it take him?

9	mins

10. A child's building brick measures 2 centimetres by 3 centimetres by 4 centimetres. What is the greatest number of these bricks which can be packed into a box which measures 16 centimetres by 15 centimetres by 10 centimetres?

10	

11. Work out 15% of £3.

11	p

12. The facsum of a number is the sum of all its factors.
For example, the facsum of 6 is 12 because
1 + 2 + 3 + 6 = 12. Work out the facsum of 20.

12	

13. Write 0.36 as a fraction in its simplest form.

13	

14. I have some 20p pieces. I have twice as many 10p pieces as 20p pieces. I have twice as many 5p pieces as I have 10p pieces. I have £4.80 altogether. How many coins do I have?

14	

15. Irfan is standing in a queue of 24 people.
What position is he in the queue if there are 7 more people ahead of him than behind him?

15	

16. How much is $\frac{3}{4}$ of $\frac{2}{5}$ of £1?

16	p

17. Three CDs and two DVDs cost £43. Two CDs and three DVDs cost £47. What is the cost of one CD?

17	£

18. The area of a rectangle is 72 square centimetres.
The length of the rectangle is 1 cm more than the width.
Work out the length of the perimeter of the rectangle.

18	cm

19. Four boys have an average mass of 50 kg and six girls have an average mass of 40 kg.
What is the average mass of the ten children?

19	kg

20. Ten cards numbered from 1 to 10 are put in order in a pile, with 1 on the top. I move one card from the top and place it at the bottom, and then throw the new top card away. Then I put the new top card to the bottom, and this time a second top card to the bottom, before throwing away the next one. Now I put the new top card to the bottom, the next top card to the bottom, and now a third top card to the bottom, before throwing the next one away. Finally, I put the top card to the bottom, the next top card to the bottom, the next top card to the bottom, a fourth top card to the bottom, and throw away the next card. What number is on the card now at the top of the pile?

20	

END OF PAPER

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