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

First name .....

Current school .....

mgs Founded 1515 | The Manchester Grammar School

Entrance Examination 2016
Arithmetic Section A

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 this 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. Try not to leave blank answer spaces at the end, instead 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. You may use rough paper for working out, this will not be marked.

Marker 1	Methods Q1-10	Problems Q11-20	**Marker 1 TOTAL**	**Marker 2 CHECK**	**AGREED MARK**
Number Correct					
Number Wrong					

1. Work out 983 + 254

1	

2. Work out 573 x 300

2	

3. Write $\frac{7}{20}$ as a decimal number.

3	

4. What fraction of a day is 9 hours? Write your fraction in its simplest form.

4	

5. What is the missing decimal number in this list
2.7, 4.3, ..., 7.5, 9.1

5	

6. Work out $4\frac{1}{4} - 1\frac{3}{5}$

6	

7. Work out 6.48 ÷ 0.6, writing your answer as a decimal number.

7	

8. Subtract the difference between 62 and 35 from the product of 13 and 6.

8	

9. One of the angles in a triangle is 40°. One of the remaining two angles is three times larger than the other angle. What is the largest angle in the triangle?

9	°

10. A shop reduces its prices by 20% in a sale. David bought a coat for £40 in the sale. How much would the coat have cost him **before** the sale?

10	£

FOR MARKER USE ONLY

	Q1 - 10
Number Correct	

	Q1 - 10
Number Wrong	

11. Nigel folds a **square** piece of paper in half to give a rectangle which has a perimeter of 36 cm. What is the area of the original square?

11		cm^2

12. Rachel buys three identical bags of sweets and five cans of drink, the total cost of these items came to £4.90. Rosie buys just one bag of sweets and three cans of drink and pays £2.70. What is the cost of a bag of sweets?

12		p

13. Tim has three apples. The mean (average) weight of the three apples is 90 grams. When Tim eats the largest apple, the mean weight of the remaining two apples is just 70 grams. What was the weight of the largest apple?

13		grams

14. In the sequence of numbers which starts 2, 3, 5, 9, ... each number is one less than two times the previous number in the list. What is the number in the list immediately **before** 257?

14	

15. A plant is growing at a steady rate of 0.2 cms every day. At midday on January 19th the plant was 6 cms high. What will the date be when it reaches a height of 11 cm?

15	

16. A bag contains coloured counters of just **two** colours. There are twenty green counters numbered 1 to 20 and thirty blue counters numbered 1 to 30. What is the probability of picking a counter from the bag which is a multiple of four?

16	

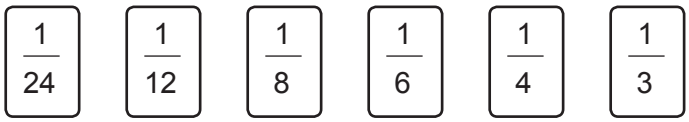
17. *Lathes Engineering* produces ten boxes of screws every minute. It has to produce 48,000 boxes of screws in five days. If its machines work an equal amount of time each day, work out the number of hours which will be needed **each day** to produce the boxes of screws needed.

17		hrs

18. At Frantic Junction, trains arrive at regular intervals on three different lines. On the line from Aytown, trains arrive every 15 minutes. On the line from Beeville, they arrive every 12 minutes and from Ceeford they arrive every 8 minutes. At 10.00am a train from each town arrives at Frantic Junction. What is the next time that three trains will arrive together.

18	

19. Irfan has six fraction cards as shown below



Write down a possible way in which he can add **<u>three or more</u>** cards to get the answer $\frac{1}{2}$

19	

20. 83 is a prime number. If Nancy reverses the order of the digits she gets 38 which is not prime. How many two digit primes **<u>do</u>** give a different prime number when their digits are reversed?

20	

This is the end of the Examination

Use any remaining time to check your work or try any questions you have not answered.

FOR MARKER USE ONLY

	Q11 - 20
Number Correct	

	Q11 - 20
Number Wrong	