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

**First name** .....

**Current school** .....

mgs Founded 1515 | The Manchester Grammar School

# Entrance Examination 2018
# 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.
Each question is worth 1 mark.

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.**

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

1. Work out 374 + 528

| 1 | |
|---|---|

2. Work out $44.8 \div 0.7$

| 2 | |
|---|---|

3. What is the missing number in the following sequence

   2.3, 3.4, 4.7, 6.2, ....., 9.8

| 3 | |
|---|---|

4. Subtract $1\frac{3}{4}$ from $3\frac{3}{8}$

| 4 | |
|---|---|

5. Work out 2.35 x 3000

| 5 | |
|---|---|

6. What is 40% of 650 grams?

| 6 | g |
|---|---|

7. Express 0.85 as a fraction in its simplest form

| 7 | |
|---|---|

8. Add together 6.37, 10.04 and 203

| 8 | |
|---|---|

9. Which of these numbers when multiplied by itself gives an answer which ends in a 4?

   26 44 58 73

| 9 | |
|---|---|

10. What is the **least** number which can be added to 278 to make a number which is exactly divisible by 13?

| 10 | |
|---|---|

**FOR MARKER USE ONLY**

| | Q1 - 10 |
|---|---|
| **Number Correct** | |

| | Q1 - 10 |
|---|---|
| **Number Wrong** | |

11. Petrol costs £1.12 per litre. If there are 4.5 litres in a gallon, what would the cost of a gallon of petrol be?

| 11 | £ |
|---|---|

12. A rectangle has an area of 70cm$^2$ and a perimeter of 38cm. What is the length of the **shortest** side of the rectangle?

| 12 | cm |
|---|---|

13. If $\frac{3}{7}$ of a number is 18, what is $\frac{5}{6}$ of the **same** number?

| 13 | |
|---|---|

14. Amna takes a test with 50 questions. Four marks are given for each correct answer but one mark is taken off for each question she gets wrong. If Amna scores 168 in the test and doesn't attempt 3 questions at all, how many questions did she answer correctly? (There is no penalty for not attempting a question in this test that Amna takes)

| 14 | |
|---|---|

15. Five friends raise £400 for their favourite charity.
Alan collects £74 and Bilal raises £86. Chloe collects twice as much as David who raises three times as much as Emily. How much did Chloe collect?

| 15 | £ |
|---|---|

16. If one cake and two biscuits provide 450 calories and two cakes and three biscuits provide 800 calories, how many calories are provided by one biscuit?

| 16 | cals |
|---|---|

17. In a bag of money to take to the bank I have only 5p, 10p and 20p coins. I have twice as many 20p coins as 10p coins and half as many 5p coins as 10p coins. If the bag contains £15.75, how many 20p coins are there?

| 17 | |
|---|---|

18. In how many different ways can the letters **M, A, T, H** be placed in a line if the T is **always** first and the A is **never** last.

| 18 | |
|---|---|

19. How many numbers between 300 and 500 contain **at least one** 4 in their digits?

| 19 | |
|---|---|

20. If the rules about what order to do arithmetic operations do **not** apply for this last question on the paper then **2 + 4 x 3** could be **2 + 12 = 14** or **6 x 3 = 18.**

    Of the **five different** answers that there could be for the following question

    **14 – 3 x 4 – 2 =**

    depending on the order you use for the operations, **which answer would be in the middle if the answers were placed in descending order (from largest to smallest)?**

| 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** | |