Edexcel GCSE
Mathematics

Foundation/Higher Tier
Number: Place value

Information for students

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 9 questions in this selection.

Advice for students

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

Information for teachers

The questions in this document are taken from the 2009 GCSE Exam Wizard and include questions from examinations set between January 2003 and June 2009 from specifications 1387, 1388, 2540, 2544, 1380 and 2381.

Questions are those tagged as assessing "Place value" though they might assess other areas of the specification as well. Questions are those tagged as "Foundation/Higher" so could have (though not necessarily) appeared on either a Foundation, Intermediate or Higher tier paper.

GCSE Mathematics

Formulae: Foundation Tier

You must not write on this formulae page.

Anything you write on this formulae page will gain NO credit.

Area of trapezium = $(a + b)h$
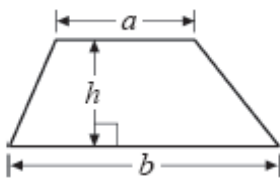
Volume of prism = area of cross section × length
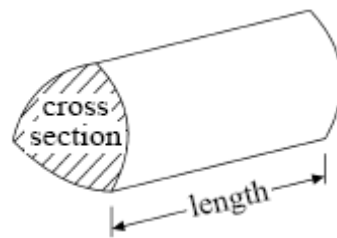
1.   Using the information that

     $97 \times 123 = 11\ 931$

     write down the value of

     (i) 9.7×12.3

     …………………..

     (ii) $0.97 \times 123\ 000$

     …………………..

     (iii) $11.931 \div 9.7$

     …………………..
     (Total 3 marks)

2.   (a)   Use the information that

           $$13 \times 17 = 221$$

           to write down the value of

           (i) 1.3×1.7

           ....

           (ii) $22.1 \div 1700$

           ....
           (2)

     (b)   Use the information that

           $$13 \times 17 = 221$$

           to find the Lowest Common Multiple (LCM) of 39 and 17

           ....
           (2)
           (Total 4 marks)

3.   Use the information that

$257 \times 34 = 8738$

to find the value of

(a) 2.57×34

………………………

(1)

(b) $873.8 \div 2.57$

………………………

(1)
(Total 2 marks)

4.   Using the information that

$19 \times 24 = 456$

write down the value of

(a) 19×240

....

(1)

(b)   19 × 2.4

....

(1)

(c)   456 ÷ 190

....

(1)
(Total 3 marks)

5.   Using the information that

$$4.8 \times 34 = 163.2$$

write down the value of

(a)   48 × 34

....

(1)

(b)   4.8 × 3.4

....

(1)

(c)   163.2 ÷ 48

....

(1)
(Total 3 marks)

6.   Use the information that

$$322 \times 48 = 15\ 456$$

to find the value of

(a) 3.22×4.8

....
                                                                    (1)

(b) 0.322×0.48

....
                                                                    (1)

(c) $15\ 456 \div 4.8$

....
                                                                    (1)
                                                        (Total 3 marks)

7. $32 \times 129 = 4128$

Write down the value of

(i) 3.2×1.29

……………………………

(ii) $0.32 \times 129\ 000$

……………………………
                                                        (Total 2 marks)

8. Using the information that

$$97 \times 123 = 11\ 931$$

write down the value of

(i) $0.97 \times 123\ 000$

....

(ii) $11.931 \div 9.7$

....
(Total 2 marks)

9. Using the information that

$$38 \times 323 = 12\ 274$$

find the value of

(i) 0.38×323

……………

(ii) $12\ 274 \div 380$

……………

(iii) 37×323

……………
(Total 4 marks)

10. Using the information that

$$73 \times 154 = 11\ 242$$

write down the value of

(i) 7.3×1.54

....

(ii) $112\ 420 \div 0.73$

....
(Total 2 marks)

11. Using the information that

$$65 \times 423 = 27\ 495$$

find the value of

(i) 0.65×4230

....

(ii) $274.95 \div 650$

....
(Total 2 marks)

12. Use the information that

$$257 \times 34 = 8738$$

to find the value of

(a) 2.57×34

………………….
(1)

(b)   873.8 ÷ 2.57

....
(1)
(Total 2 marks)

13.   Given that

67 × 329 = 22043,

What is   0.67 × 32.9?

2.2043	22.043	220.43	2204.3	22043
A	**B**	**C**	**D**	**E**

(Total 1 mark)

14.   Given that 48.6 × 35 = 1701

write down the value of

(a)   4.86 × 3.5

....
(1)

(b) $17.01 \div 35$

....
(1)
(Total 2 marks)

15.   Given that $32 \times 14 = 448$

write down the value of

(a) 32×1.4

....
(1)

(b) 0.32×14

....
(1)

(c) $448 \div 320$

....
(1)
(Total 3 marks)

16.   Given that $47 \times 81.6 = 3835.2$

What is the value of 0.47×816?

383.52	38 352	38.352	3835.2	3.8352
A	**B**	**C**	**D**	**E**

(Total 1 mark)

01.   (i)   119.31   3

   B1 cao

   (ii)   119310

   B1 cao

   (iii)   1.23

   B1 cao

[3]

02.   (a)   (i)   2.21   2

   B1 for 2.21

   (ii)   0.013

   B1 for 0.013

   (b)   663   2

   LCM = 3 × 13 × 17 = 3 × 221
   M1 for 3 × 13 × 17 oe
   A1 for 663

[4]

03.   (a)   87.38   1

   B1 cao

   (b)   340   1

   B1 cao

[2]

04. (a) 4560   1
B1 cao

(b) 45.6   1
B1cao

(c) 2.4   1
B1 cao

[3]

05. (a) 1632   1
B1 for 1632 or 1632.0

(b) 16.32   1
B1 for 16.32 cao

(c) 3.4   1
B1 for 3.4 cao

[3]

06. (a) 15.456   1
B1 cao

(b) 0.15456   1
B1 cao

(c) 3220   1
B1 cao

[3]

07. 4.128
41280   2
B1 cao
B1 cao

[2]

08. (i) 119 310
B1 cao

(ii) 1.23   2
B1 cao

[2]

09. (i)   122.74   1
              B1 cao

      (ii)   32.3   1
              B1 cao

      (iii) 11951   2
             12274 – 323
                      M1 for 12274 – 323 oe
                      A1 cao

                                                                                                      [4]

10. 11.242
         154000   2
                      B1 cao
                      B1 cao

                                                                                                      [2]

11. (i)   2749.5   2
              B1 cao

      (ii)   0.423
              B1 cao

                                                                                                      [2]

12. (a)   87.38   1
              B1 cao

      (b)   340   1
              B1 cao

                                                                                                      [2]

13. B

                                                                                                      [1]

14. (a)   17.01   1

              B1 cao

    (b)   0.486   1

              B1 cao

                                                                                           [2]

15. (a)   44.8   1

              B1 for 44.8 cao

    (b)   4.48   1

              B1 for 4.48 cao

    (c)   1.4   1

              B1 for 1.4 cao

                                                                                          [3]

16. A

                                                                                          [1]

01.   **Mathematics A**

Paper 3

Many candidates tried to use long multiplication and division methods. The three parts discriminated well, in that most candidates obtained the first part, but then met decreasing success through parts (ii) and (iii). There was little evidence that candidates understood the relationship between place value and the position of the decimal points.

Paper 5

Many candidates gained full credit for this place value question. The most common problems occurred in part (iii) where a significant number of candidates gave the answer as either 1.1931 or as 0.0123.

Mathematics B Paper 18

The majority of candidates were able to score some marks on this question. Part (iii) was clearly more demanding and only successfully completed by a minority of candidates.

02.   Mathematics A

Paper 3

Many candidates wrote down the correct value of 1.3 × 1.7 in part (a). Relatively few, however, gave the correct answer to 22.1 ÷ 1700 and a significant number of candidates actually tried to work it out using a division method and made a mess of it. In part (b) most candidates did not realise the significance of the information given to them, resulting in a small number of fully correct responses. Many wrote out lists of multiples using repeated addition. A common error was for candidates to mix up LCM and HCF and give an answer of 1.

Paper 5

In this place value question most candidates answered the first part correctly but in the division in part (ii) there was less success. Although the question said 'write down' this should not stop candidates from finding the position of the decimal point by considering, for example, the answer to "17 ÷ 1700". Many attempted to find the LCM in part (b) by multiplying 39 by 17, with varying degrees of success, instead of recognising the link with the given information.

Mathematics B Paper 16

Part (a) 67% correctly wrote down the value of 1.3 × 1.7 whilst only 8.5% were able to write down the value of 22.1/1700
The concept of Lowest Common Multiples is not widely known, or understood, at this level. The majority of candidates attempting this question were actually thinking in terms of HCF and an answer of 1 was often seen.

03.   Foundation Tier

Although this type of question appears quite often in papers, less than a quarter of the candidates were successful in (a) with only a 2% success rate in (b). Candidates do not seem aware that the digits in their answers should come from the digits in the given information and it was not uncommon to find that the candidates had tried, unsuccessfully, to work out the values by long multiplication or long division.

Intermediate Tier

Most candidates successfully used the expression given in the question to find the correct answer in part (a). In part (b) candidates usually deduced that the digits 34 were needed, but were unable to arrive at the 340. There were many answers such as 0.34, 3.40 in evidence.

04. **Foundation Tier**

For the better candidate parts (a) and (b) were well answered. It was very rare to get success with this question for candidates who were aiming for Grade F and E. Part (c) was hardly ever correct on this foundation paper.

Intermediate Tier

The majority of candidates were successful in part (a). Slightly fewer gave the correct answer in part (b) and a common error was for 4.56, instead of 45.6, to be given. Part (c) was answered least well. Here, a common incorrect answer was 24. Some candidates did not use the information given at the start of the question and attempted to work out each calculation from scratch. These attempts almost invariably failed.

05. **Foundation**

Many candidates were successful in part (a). Slightly fewer gave the correct answer in part (b) and a common error was for 163.2, instead of 16.32, to be given. Part (c) was answered least well. Here, a very common incorrect answer was 34. A significant number of candidates did not use the information given at the start of the question and attempted to work out each calculation from scratch. These attempts almost invariably failed.

Higher

This question was done well by the vast majority of the candidates. A small number of candidates tried to do the various calculations rather than use the information provided, but few of these attempts resulted a correct answer. Common incorrect answers in part (c) were 34 and (more rarely) 340.

06. **Foundation**

In part (a), 57% gave the correct answer. Parts (b) and (c) were less well done, with incorrect positioning of the decimal point accounting for the majority of the errors made.

Higher

Part (a) was answered correctly by about 90% of the candidates and almost 70% were successful in part (b). Many of those who answered (b) incorrectly did not appreciate that the answer had to be less than 1. Part (c) proved to be the most difficult with about half of the candidates giving the correct answer. The most common incorrect answer in this part was 32.20.

07. Few candidates evaluated both parts correctly. A correct answer to part (i) only was seen more often. Many candidates ignored the information given and carried out long multiplication methods, which were usually doomed to failure, giving digits other than the 4128 required.

08. Even though this type of question is becoming more frequent it was not well done. In part (i) candidates realised that the answer contained the digits 11931 but neither decimal points or zeros could be found anywhere. Success in part (ii) was less, many candidates still preferring to give their answer in terms of 11931.
A significant number of candidates chose to ignore the information given opting instead for long multiplication and long division methods. These usually failed.

09. Many candidates scored at least 1 mark in this question, and often more. Part (ii) was least well done with 22% only gaining the mark. 33% answered part (i) correctly, occasionally by long multiplication; however long multiplication methods were more in evidence in part (iii) were 47% gained full marks. Even so half of these realised that 12274 – 323 gave the required answer.
Errors were predictably due to incorrect positioning of the decimal point in parts (i) and (ii). In part (iii) frequently seen answers were 3230 (2261 + 969), 12273 (12274 – 1), 12236 (12274 – 38) and 12237 (12274 – 37).

10. The vast majority of candidates were able to answer part (a) correctly but were less successful in part (b). Candidates should be advised to check their final answer by working out an approximate answer to the given sum

11. No report available.

12. Part (a) was often done well but part (b) less so with 0.34 being the most common mistake.

13. No Report available for this question.

14. In this type of question most candidates do, in general, realise that the required answer is using the digits of the third of the numerical term. In part (a) this understanding usually lead to a correct answer of 17.01, however in part (b) performance was much less good; 4.86 and 48.6 being very common incorrect answers seen.

15.   This question was not well understood with few candidates gaining all three marks. Candidates gained most success with part (b) whilst part (c) was only seldom answered correctly. A surprising number of candidates tried to use long multiplication methods to find the answer, often with little success.

16.   No Report available for this question.