Edexcel GCSE

Mathematics

Foundation Tier

Number: Approximation, estimation

Information for students

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 35 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 "Approximation and estimation" though they might assess other areas of the specification as well. Questions are those tagged as "Foundation" so could have (though not necessarily) appeared on either a Foundation or Intermediate 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 $= (a + b)h$
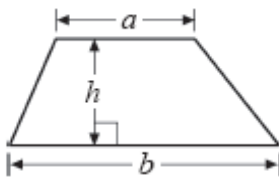
Volume of prism = area of cross section × length
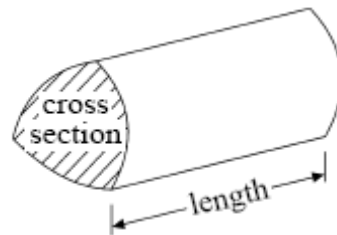
1.   54 327 people watched a concert.

(a)   Write 54 327 to the nearest thousand.

....
(1)

(b)   Write down the value of the 5 in the number 54 327.

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

2.   (a)   Work out $\dfrac{11}{12} - \dfrac{5}{6}$

....
(2)

(b)   Estimate the value of $\dfrac{68 \times 401}{198}$

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

3.   (a)   Write the number **seventeen thousand, two hundred and fifty-two** in figures.

……………………..
(1)

(b)   Write the number 5367 correct to the nearest hundred.

……………………..
(1)

(c)   Write down the value of the 4 in the number 274 863

……………………..
(1)
(Total 3 marks)

4.   Jade made a train journey.

Her train should have arrived at 14 40

It arrived 1 hour 50 minutes late.

(a)   At what time did her train arrive?

……………………..

(1)

The railway company gave Jade some money back, because her train was late.

The company used this rule to work out the amount of money.

Find $\frac{1}{4}$ of the ticket price
Then round **up** this answer to the next whole number of pounds

Jade's ticket price was £33.56

(b)   (i)   Work out $\frac{1}{4}$ of £33.56

£……………………

(ii)   Round up your answer to part (i) to the next whole number of pounds.

£……………………

(3)

(Total 4 marks)

5.

The picture shows a man standing next to a giraffe.

The man and the giraffe are drawn to the same scale.

(a)   Write down an estimate for the height, in metres, of the man.

………………….m

(1)

(b)   Estimate the height, in metres, of this giraffe.

………………….m

(3)
(Total 4 marks)

6. (a) Write the number **seven thousand**, **two hundred and fifty two** in figures.

....

(1)

(b) Write the number 3086 in words.

....
..

(1)

(c) Write the number 4637 to the nearest hundred.

....

(1)

(d) Write the value of 2 in the number 5271

....

(1)
(Total 4 marks)

7. Work out an estimate for the value of 5.1 × 98

....

(Total 2 marks)

8. (a) Write the number 5250 in words.

....
.

(1)

(b) Write 23 250 to the nearest thousand.

....

(1)

(c) Write down the value of the 3 in the number 42 350

....

(1)

(d) Write **six thousand three hundred and seventy four** in figures.

....

(1)
(Total 4 marks)

9. (a) Complete this table.
Write a sensible unit for each measurement.
Three have been done for you.

	Metric	**Imperial**
Distance from London to Cradiff	km	…………
Weight of a bag of potatoes	…………	pounds
Volume of fuel in a car's fuel tank	…………	gallons

(3)

(b) Here is a picture of a woman opening a door that is 2 m high.
Estimate the height of the woman.
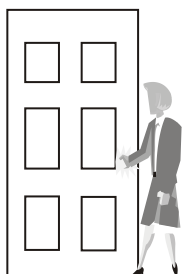
.... m

(2)
(Total 5 marks)

10. (a) Write the number 3187 to the nearest thousand.

....

(1)

(b) Write the number **four thousand six hundred and eighty one** in figures.

....

(1)

(c) Write the number 5060 in words.

....
.

(1)
(Total 3 marks)

11. (a) Write the number **nine thousand, three hundred and seventy four** in figures.

....

(1)

(b) Write the number 62 500 in words.

....
.

(1)

(c) Write down the value of the **8** in the number 3285

....

(1)

(d) Write the number 2174 to the nearest hundred.

....

(1)

(e) Write the number 7362 to the nearest thousand.

....

(1)
(Total 5 marks)

12.
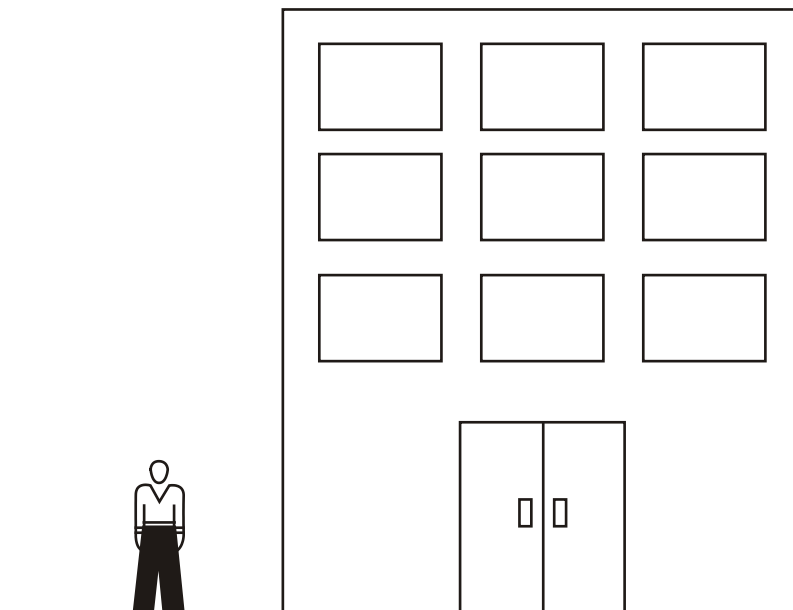
The diagram shows a building and a man.
The man is of normal height.
The man and the building are drawn to the same scale.

(a)   Write down an estimate for the height of the man.

....

(1)

(b)   Write down an estimate for the height of the building.

....

(2)
(Total 3 marks)

13. (a)   Write the number 4117 in words.

....
.

(1)

(b)   Write the number 4117 to the nearest hundred.

....

(1)
(Total 2 marks)

14. (a)   Write 37 451 correct to 1 significant figure.

……………………………

(1)

(b)   Write 0.000 726 9 correct to 1 significant figure.

……………………………

(1)
(Total 2 marks)

15. Work out the value of

(i) $\sqrt{46} - 2.5^2$

Write down all the figures on your calculator display.

……………………………

(ii)   Write your answer to (i) correct to 1 significant figure.

……………………………

(Total 3 marks)

16.   (a)   Write down the value of the 5 in the number 54 327.

....
(1)

(b)   Write 0.874 correct to 1 significant figure.

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

17.   (a)   Write 0.060 172 correct to 1 significant figure.

………………….
(1)

(b)   Write 28 473 correct to 1 significant figure.

……………………
(1)
(Total 2 marks)

18.   (a)   Write **three hundred and fifty thousand** in figures.

…………….
(1)

(b)   (i)   Write 25 400 in words.

……………………………………………………………………………

(ii)   Write down the value of the **5** in 25 400.

………………….
(2)

(c)   (i)   Write 25 730 correct to the nearest thousand.

………………….

(ii)   Write 25 730 correct to the nearest hundred.

………………….
(2)
(Total 5 marks)

19.   Jenny said that the length of her book is 21.335 cm.
The length given by Jenny is not sensible.

Explain why her answer is not sensible.

…………………………………………………………………………………………………....

…………………………………………………………………………………………………....

…………………………………………………………………………………………………....

(Total 1 mark)

20.   (a)   Write the number 56 392 correct to one significant figure.

....

(1)

(b)   Write the number 0.0436 correct to one significant figure.

....

(1)
(Total 2 marks)

21.   Write the number 7623 correct to 1 significant figure.

....

(Total 1 mark)

22. Use your calculator to work out the value of $\dfrac{5.68 - 1.32^2}{0.73}$

Write down all the figures on your calculator display.

....
(Total 2 marks)

Write the number 7623 correct to 1 significant figure.

....
(Total 1 mark)

23. Write the number 3927 correct to 1 significant figure.

…………………….
(Total 1 mark)

24. (a) Use your calculator to work out the value of $\sqrt{976} - 24.6$

Write down all the figures on your calculator display.

....
(2)

(b) Write your answer to part (a) correct to 1 significant figure.

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

25. Use the information that

$$56 \times 29 = 1624$$

to find the value of 56×0.29

....
(Total 1 mark)

26. Work out an estimate for $\dfrac{29.8 \times 4.1}{0.21}$

....
(Total 3 marks)

27. A café had 23578 customers last year.

Round the number 23578 to the nearest ten.

23572	23570	23580	23500	23600
A	**B**	**C**	**D**	**E**

(Total 1 mark)

28. In one week 9786 people visited a museum.

The number 9786 rounded to the nearest ten is

10000	9700	9790	9780	9800
A	**B**	**C**	**D**	**E**

(Total 1 mark)

29.   13 557 people watched a football match.

What is the number 13 557 when rounded to the nearest hundred?

13 600	14 000	13 500	13 560	13 000
A	**B**	**C**	**D**	**E**

(Total 1 mark)

30.   What is 372.42 correct to one significant figure?

372.4	300	372	370	400
A	**B**	**C**	**D**	**E**

(Total 1 mark)

31.   (a)   Write the number 867 to the nearest 100

....

(1)

(b)   Write the number 2805 in words.

....
.

(1)

(c)   Write the number **five thousand four hundred and sixty** in figures.

....

(1)
(Total 3 marks)

32.   (a)   Write the number **three thousand four hundred and twenty five** in figures.

....
                                                                                          (1)

(b)   Write down the value of 4 in the number 2840

....
                                                                                          (1)

(c)   Write the number 279 to the nearest hundred.

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

33.   What is 3762 when rounded to the nearest 100?

37	3700	38	3800	4000
A	**B**	**C**	**D**	**E**

                                                                                   (Total 1 mark)

34.   (a)   Write 3.9 to the nearest whole number.

....
                                                                                          (1)

(b)   Write down the square of 4

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

35. (a) Write 25.2 to the nearest whole number.

....

(1)

(b) Write $\dfrac{1}{5}$ as a decimal.

....

(1)

(c) Write 27% as a fraction.

....

(1)

(Total 3 marks)

01. (a) 54 000   1

B1 cao accept 54 thousand

(b) 50 000   1

B1 (accept ten thousand or 10 000) oe

[2]

02. (a) $\dfrac{1}{12}$ 2

$\dfrac{11}{12} - \dfrac{10}{12}$

M1 for correctly writing both fractions to a common denominator

A1 for $\dfrac{1}{12}$ oe

(b) 140   2

$\dfrac{70 \times 400}{200}$

B2 for 140 (accept 136)
(B1 for sight of any two of 70, 400 or 200)

[4]

03. (a) 17252   1

B1 cao

(b) 5400   1

B1 cao

(c) thousands, 1000, 4000   1

B1 cao

[3]

04. (a) 16 30   1

B1 Accept 4 30 pm Do not accept 4 30

(b) (i) 8.39   3

33.56 ÷ 4 oe
M1 for 33.56 ÷ 4 oe eg 3356 ÷ 4, division by 2 twice
A1 cao

(ii) 9

B1 ft from "8.39" unless whole number of pounds

[4]

05. (a) 1.5 – 2.0   1

     (b) 3 – 6   3

           Height of man × "2.5"
                  B1 for height between 1.5m – 2.0m inclusive
                  B3 for height between 3m – 6m inclusive
                  (B2 for multiplying (a) by a number between 2 and 3
                  inclusive)
                  (B1 for multiplying (a) by a number)

                                                                          [4]

06. (a) 7252   1
                B1 cao

     (b) Three thousand and eighty six   1
                B1 accept 3 thousand and eighty six (condone 0 hundred)

     (c) 4600   1
                B1 accept 4600

     (d) 200   1
                B1 for 200 or 2 hundred or 100 or hundred

                                                                                         [4]

07. 5 × 500
     = 500   2
                B2 for 490 or 500 or 510
                (B1 for either 5 or 5.0 or 100 seen)

                                                                             [2]

08. (a) Five thousand two hundred and fifty   1
                B1 accept 5 thousand 2 hundred and 50

     (b) 23 000   1
                B1 cao

     (c) 300   1
                B1 accept 3 hundred or hundred but not 3

     (d) 6 374   1
                B1 cao

                                                                              [4]

09. (a) miles   1
>*B1*

kg   1
>*B1 accept grams*

litres   1
>*B1*

(b)   2
>*B2 for answer in range 1.3 m to 1.5 m inclusive*
>*(B1 for answer in range 1.2 m to 1.7 m inclusive)*

[5]

10. (a) 3000   1
>*B1 for 3000 cao*

(b) 4681   1
>*B1 for 4681 cao*

(c) five thousand and sixty   1
>*B1 for five thousand and sixty*

[3]

11. (a) 9374   1
>*B1 cao*

(b) sixty two thousand five hundred   1
>*B1 cao*

(c) 80   1
>*B1 for 80, accept 8 tens, tens*

(d) 2200   1
>*B1 cao*

(e) 7000   1
>*B1 cao*

[5]

12. (a)   1.5 → 2.2 metres   1

  B1 for 1.5m → 2.2m oe
   or 4ft 10 inches → 7ft oe

(b) $3 \times$ (a) $\rightarrow 5 \times$ (a)

4.5 m $\rightarrow$ 11 m   2

> *M1 for 3 × (a) → 5 × (a)*
> *(units not needed but cannot be contradictory)*
> *A1 cao for 4.5 m → 11 m oe or 14½ ft → 35ft oe (units needed)*
> *Note: 5m = 500 cm = 196.85 inches = 16.4 ft*

[3]

13.   (a)   Four thousand, one hundred and seventeen   1

> *B1 for four thousand, one hundred and seventeen oe*

(b)   4100   1

> *B1 for 4100 in figures or words or 41 hundred*

[2]

14.   (a)   40000   1

> *B1 cao*

(b)   0.0007   1

> *B1 cao*

[2]

15.   (i)   0.5323…….   3

$\dfrac{6.782\ldots - 6.25}{}$

> *M1 for sight of 6.782… or 6.25*
> *A1*

(ii)   0.5

> *B1 ft [0.5000… gets B0]*

[3]

16.   (a)   50000   1

> *B1 (accept ten thousand or 10 000) oe*

(b)   0.9   1

> *B1 cao*

[2]

17.　(a)　0.06　　　　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1 cao

　　　(b)　30000　　　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1 cao

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[2]

18.　(a)　350 000　　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1

　　　(b)　(i)　Twenty five thousand four hundred　　　　　　1
　　　　　　　　　B1 (accept 25 thousand 4 hundred)

　　　　　(ii)　5 000　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1 (accept 5 thousand, thousand, 1000)

　　　(c)　(i)　26 000　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1

　　　　　(ii)　25 700　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[5]

19.　Valid reason　　　　　　　　　　　　　　　　　　　　1
　　　　　B1 eg too many digits after the decimal point

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[1]

20.　(a)　60 000　　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1 cao

　　　(b)　0.04　　　　　　　　　　　　　　　　　　　　　　1
　　　　　　　　　B1 cao

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[2]

21.　8000　　　　　　　　　　　　　　　　　　　　　　　1
　　　　　B1

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[1]

22. $\dfrac{(5.68 - 1.7424)}{0.73}$

$\dfrac{3.9376}{0.73}$

5.3939 (72603)   2

M1 for 5.68 – 1.7424
or 3.93... or 3.94 or 5.39... seen
A1 for 5.3939 or better

[2]

23.   4000   1

B1 cao

[1]

24. (a)   6.64099…   2

B2 for 6.64099...
(B1 for 31.24099...) or sight of attempt to calculate $\sqrt{976}$

(b)   7   1

B1 ft from (a)

[3]

25.   16.24   1

B1 cao

[1]

26. $\dfrac{30 \times 4}{0.2}$ 3

= 600

M1 for 2 values rounded correctly to 1 sig fig
M1 (indep) for a correct method to divide by a decimal
(eg $\dfrac{30 \times 4 \times 10}{0.2 \times 10}$)
A1 cao

Sight of $\dfrac{120}{"0.21"}$, with no working, would imply that 29.8
and 4.1 have been correctly rounded to 1 sig. fig. for the
award of the first M1.
Sight of 150 × "4.1" (or "29.8" × 20) would imply that
two of the three numbers have been correctly rounded to 1
*sig. fig. **and** correct division by a decimal and so M2*
could be awarded.

[3]

27. C

[1]

28. C

[1]

29. A

[1]

30. E

[1]

31. (a)   900   1

B1 for 900 (accept 9 hundred, nine hundred)

(b)   Two thousand eight hundred and five   1

B1 accept twenty eight hundred and five

(c)   5460   1

B1 cao

[3]

32. (a)   3425   1

   B1 for 3425 cao

   (b)   40   1

   B1 for 40 or forty or 4 tens or tens

   (c)   300   1

   B1 for 300 or 3 (hundred)

                                                                      [3]

33.   D

                                                                      [1]

34. (a)   4   1

   B1 accept 4.0(0)

   (b)   16   1

   B1

                                                                      [2]

35. (a)   25   1

   B1 for 25 cao

   (b)   0.2   1

   B1 for 0.2 cao

   (c) $\dfrac{27}{100}$ 1

   B1 for $\dfrac{27}{100}$ cao

                                                                      [3]

01.   Part (a) was usually correctly answered though 50,000 was a common incorrect answer. In part (b) answers of 50,000 or 10,000 were accepted and often seen. This part was not answered as well as part (a). About 25% of candidates gave fractional answers such as thousandths.

02.   **Mathematics A**

   Paper 1

   (a)   Only 3% candidates were able to give the correct answer of '$\frac{1}{12}$' in this part of the question. Most candidates simply subtracted numerators and denominators to give an answer of '$\frac{6}{6}$' or '1'. Very few candidates entered for this paper seemed to have any understanding of the need to use common denominators to add or subtract fractions.

   (b)   Most candidates preferred to attempt to work out the exact answer to the calculation given, apparently missing the significance of the instruction to 'estimate' the value. Where they understood this instruction, 10% of candidates usually scored one of the two marks available for rounding two of the numbers to one significant figure but only 2% completed the calculation accurately.

   Paper 3

   Less than 50% of candidates added the two fractions correctly in part (a). The most common error, by far, was to subtract the numerators and subtract the denominators, giving $\frac{6}{6}$ = 1. Those who recognised the need for a common denominator were usually successful. In part (b) the majority of candidates rounded the numbers to one significant figure but many then had difficulty working out $\frac{70 \times 400}{200}$ and were unable to complete the calculation correctly. Some candidates gained no marks as they disregarded the requirement to estimate and attempted to work with the exact values.

   Mathematics B Paper 14

   Less than 4% of the candidates scored any marks at all on this question, which is extremely disappointing. The vast majority of candidates had no idea of a common denominator, which accessed the first mark. (11 − 5)/(12 − 6) = 6/6 or 1 was frequently seen.
   For the estimation in part (b) it was not unusual to see 68 × 401 followed by an attempted long division by 198, scoring no marks. Some did realise that by writing 68 as 70, 401 as 400 and 198 as 200, it produced a more accessible calculation with 13% of candidates able to round at least 2 of the values to one significant figure. The ensuing evaluation often resulted in '14…' with the number of zeros after the 14 being less decisive.

03.   Specification A

This was a gentle start to the paper for most candidates, although it was noticeable that some gave 7252 as the answer to the first part, presumably misreading the question. Rounding to the nearest hundred was well understood, as was place value.

Specification B

Many candidates scored some marks for this question. A common error in part (a) was to write 7252, missing out the initial 1. In part (b) many realised what was being asked but many rounded down to 5300.

04.   The quality of answers to the first part varied widely, some, such as 15 90, exposing a lack of understanding of time notation in general and the 24 hour clock in particular. For candidates switching to the 12 hour clock, 4 30 pm was accepted but 4 30 was not.

In the second part, many candidates made little headway in working out $\frac{1}{4}$ of £33.56

and did not even score the one mark available for showing that they appreciated that this was equivalent to £33.56 ÷ 4. Clear attempts to halve £33.56 twice also received this method mark. Trial methods were common and were usually doomed. The mark for (b)(ii) could still be gained if the candidate correctly rounded up their, perhaps wrong, answer to part (i) but most rounded to the nearest pound.

05.   Surprisingly, only 46% of the answers to part (a) were in the interval 1.5m – 2.0m inclusive – the range of values worthy of credit in this part of the question. In part (b) however a good proportion of candidates (47%) were able to give an acceptable estimate for the height of the giraffe, or to give an answer which was a reasonable multiple (between 2 and 3) of their answer to (a) (21%); these candidates scored part marks.

06.   This question was well answered with candidates gaining most success with parts (a), (b) and (d). Candidates often made mistakes with the rounding to the nearest hundred.

07.   In this question, many candidates attempted to find an accurate answer rather than an estimate. The candidates who were most successful gave the answer 500. Some attempted to find 5 lots of 98 by addition but not always successfully. Some found 500 and then tried to adjust a bit. Those who tried to calculate 5.1 × 100 made more errors because of dealing with the decimal and often reached answers in the thousands.

08. This question was well understood with most candidates scoring full marks despite some unusual spellings. Part (b) caused a few problems in correcting to the nearest thousand and some candidates lost marks on part (d) by writing 6324 or 6364 etc.

09. Candidates always find these questions difficult and this proved so on this occasion. There were few totally correct answers though many candidates were able to gain 1 mark in part (a) and 1 mark in part (b).

10. For the majority of candidates this question provided a successful start to the paper. Mistakes were made most often in part (a) where a common error was to round to the nearest hundred rather than to the nearest thousand. Some candidates rounded 3187 up to 4000. Part (b) was answered extremely well and in part (c) most candidates could write the number 5060 in words. Here, incorrect answers often began with 'five hundred' or 'fifty thousand'.

11. All parts of this question were answered well with success rates of well over 90% for the first two parts and of over 80% for the last 3 parts. Tenths or ten were commonly seen incorrect answers to part (c). There was some incorrect rounding in parts (d) and (e). A small minority of candidates did not rounded to the accuracy required.

12. It was interesting to note that many students used imperial units in estimating the height of the man and then switched to metric units when estimating the height of the building. They were not penalised for this as long as their answers were in the required range. Many just measured the two, giving 2 cm and 8 cm as their two answers. Around 60% of the candidates scored all 3 marks with only around 10% failing to score any marks.

13. Part (a) was, in the main, answered correctly; however in part (b), 4000 and 4120 were common errors.

14. Many candidates failed to score both marks in this question. The most common errors were answers of "37000" or "4" in part (a) and "7", "7000", "0.0007000" and the inclusion of additional numbers in part (b).

15.   This was very well answered although some candidates ignored the instruction to write down all the figures on their calculator display; a minimum of 4 significant figures was required.

2.5^2 was sometimes taken as 5 and if the square root of 46 had not been written down explicitly no marks were gained for an answer of 1.7823… only.

In part (ii) the most common errors were 1 and 0.50000

16.   In Part (a) many achieved the mark with different variations of 50 000. However few scored in part (b) with 1, 0.900 or 0.874 being the most common incorrect answer.

17.   Candidates, in general, fared better with the integer (part (b)) rather than the decimal in part (a). It was not unusual to see extra zeros on the right of the 6 in part (a) and 0.6 and 0.1 appeared regularly. In part (b), 2 significant figures were sometimes given (e.g. 28000) or ignoring the zeros to give 28 or in some cases 3 or 30, indicating some understanding, albeit imperfect, of the meaning of 1 significant figure.

18.   Candidates performed better on all parts of this question than in previous years although the spelling in (b) made interesting reading!

In part (b)(ii) the vast majority of candidates wrote either 5000 or 1000 in figures or words scoring the available mark.

Approximately half the candidates made correct responses to (c). However some candidates were tempted to abbreviate their answers [26 in (i) and 700 in (ii)] which meant they were not awarded the available mark.

19.   Three quarters of the candidature gained the mark in this question by giving an acceptable explanation, of which there were many. Usually candidates referred to "too many decimal places", the need for "rounding" or the fact that "A ruler cannot measure so accurately". Many offered improved forms, eg. 21.3 cm or 21 cm. Amongst the unacceptable answers were "It should be 22 cm", "21.34 cm is better" and explaining that the book was too big or too small.

20.   Many failed to understand what is required in rounding to one significant figure. Predictable errors of 56000, 50000 and 6 repeatedly occurred in part (a) while the most common error in part (b) was to add further zeros after the 4; 0.0400 gained no marks.

21. This question was usually well answered but 7000 and 8 were common errors.

22. It was disappointing to find that over 80% of the candidates were not able to access either of the two available marks. Most of the problem occurred because the candidates did not realise they had to square the 1.32 first before subtracting from 5.68. Dividing by 0.73 was also mistaken for 'take 0.73', enough times to make it noticeable. Most candidates managed to write down lots (and lots) of (incorrect) digits from 'their' calculation!

23. Most candidates appreciated that this question required rounding the number 3927 and that the answer should be of the same order of magnitude but only 36% rounded the given number correctly to 1 significant figure. Many others rounded to 2 or 3 significant figures. Some candidates gave the response "3928".

24. In this question only about half of the candidates were able to use their calculator efficiently. They subtracted 24.6 from 976 before square rooting rather than finding the square root first then subtracting. Even though the mark in part (b) was independent only 20% of candidates were able to correctly write their answer to one significant figure.

25. Not very well answered with incorrect answers of 0.1624, 1.624, 162.4 and 1624 being seen as often as the correct answer. Some candidates ignored the given information and attempted long multiplication methods. These usually failed.

26. Many candidates gained the first method mark, usually for rounding 29.8 to 30 and 4.1 to 4 although 0.2 was often seen. The vast majority of candidates were not able to go any further; the understanding in how to divide by a decimal was very weak. Many simply divided the product of 30 and 4 by 20 (or 2) to get 6 (or 60)

Some candidates tried to calculate the exact answer to the problem. These attempts nearly always failed.

27–30. No Reports available for these questions.

31. All parts were generally answered correctly. The most common incorrect answers were 800, 870 and 860 in part(a), two thousand and five in part (b) and part (c) was rarely incorrect.

32. This question was very well answered with almost all candidates gaining the full 3 marks.

33. No Report available for this question.

34. Part (a) of this question was well understood with 93 % of candidates scored the mark for either 4, 4.0 or 4.00 whilst part (b) was less well understood as only 52% of candidates scored the marks; 2 and 8 were common wrong answers.

35. The first part of the first question on the paper was answered well with a success rate of over 80%. "26" was the most frequently seen incorrect response. Parts (b) and (c) provided more of a challenge. In part (b) only about one quarter of candidates could give a correct answer. The incorrect answer "0·15" was more commonly seen. In part (c) the fraction "$\frac{2}{7}$" was seen almost as often as the correct answer "$\frac{27}{100}$". Here, just over a half of candidates were awarded the mark available.