

SAMPLE PAPER 1
Level 2 Functional Skills Mathematics

Duration: 25 minutes
Total marks: 15

SECTION 1 – CALCULATOR NOT PERMITTED
VERSION 1.0

Candidate name (first, last)

First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

***I declare that I had no prior knowledge of the questions in this assessment and that I will not share information about the questions.**

You should have the following for this assessment:

- a pen with black or blue ink
- a pencil (for diagrams, graphs and charts only)
- an eraser
- a 30cm ruler.

You must NOT use a protractor.

You must NOT use a calculator for Section 1.



General instructions

- Read through each question carefully.
- Write all your answers in this booklet.
- Check your calculations and check that your answers make sense.

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Worked Solutions



Please note that these worked solutions have neither been provided nor approved by City & Guilds and may not necessarily constitute the only possible solutions. Please refer to the original mark schemes for full guidance.

Any writing in blue indicates what must be written in order to answer the questions and get the marks. The worked solutions have been designed to show the smallest amount of work which needs to be done to answer the question.

Anything written in green in a cloud doesn't have to be written in the exam.

Anything written in orange in a rectangle doesn't have to be written in the exam and is there to show what should be put into a calculator or measured using a ruler or protractor.

If you find any mistakes or have any requests or suggestions, please send an email to curtis@cgmaths.co.uk

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SECTION 1 – CALCULATOR NOT PERMITTED

There are **15** marks available in this section.

You should check all your work as you go along.

You must **not** use a calculator in this section.



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Q1

What is $\frac{2}{3}$ as a percentage? Give your answer rounded to two decimal places.

$$3 \overline{) 2.00}$$

66.67 %

Dividing the 2 by the 3 converts $\frac{2}{3}$ into a decimal. The decimal recurs as the remainder of 2 is repeated. Converting the decimal into a percentage by multiplying it by 100. $0.666666... \times 100 = 66.6666...$ which is 66.67 to 2 decimal places

(1 mark)

Q2

What is 14% of 200?

$$\frac{14}{100} \times 200$$

1% = $\frac{1}{100}$ so dividing 200 by 100 finds 1% of 200, which is 2. Multiplying this by 14 works out 14% of 200

28

(1 mark)

Q3

$$2\frac{1}{2} + 3\frac{3}{4} =$$

(tick one box)

A $5\frac{1}{4}$

B $5\frac{4}{6}$

C $6\frac{1}{4}$

D $6\frac{4}{6}$

$$\frac{5}{2} + \frac{15}{4}$$

Converting both mixed fractions into improper fractions by multiplying the whole numbers by the denominators then adding the result to the numerators

$$\frac{10}{4} + \frac{15}{4} = \frac{25}{4}$$

Making the denominators of both fractions the same by multiplying both the numerator and denominator of $\frac{5}{2}$ by 2. Then adding the numerators and the denominator stays the same

Dividing 25 by 4 gives 6 remainder 1. The 6 is the whole number and the remainder of 1 stays in the fraction

(1 mark)

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Q4

What is 75 as a fraction of 125? Give your answer in its simplest form.

$$\begin{array}{r} 15 \\ 5 \overline{) 75} \\ \underline{025} \\ 5 \overline{) 25} \end{array}$$

75 as a fraction of 125 is $75/125$. This can be simplified by dividing both the numerator and denominator by 5 to give $15/25$. Dividing both the numerator and denominator by 5 again gives $3/5$. They cannot be divided any further to get smaller whole numbers

$$\frac{3}{5}$$

(1 mark)

Q5

$$\frac{1}{2} - \frac{2}{7} =$$

Give your answer in its simplest form.

$$\frac{7}{14} - \frac{4}{14}$$

The denominators of both fractions are made the same and then the numerators can be subtracted. Multiplying both the numerator and denominator of $1/2$ by 7 gives $7/14$ and multiplying both the numerator and denominator of $2/7$ by 2 gives $4/14$. $3/14$ cannot be simplified

$$\frac{3}{14}$$

(1 mark)

Q6

$$(8 + 2 \times 6)^2 =$$

$$\begin{array}{l} 8+12 \\ 20 \times 20 \end{array}$$

$$\frac{400}{\text{-----}}$$

Following the order of operations, BIDMAS, so the brackets need to be resolved first. Within the bracket, the multiplication needs to be done first. $2 \times 6 = 12$. Then $8 + 12 = 20$. 20^2 means 20×20 . $2 \times 2 = 4$ so $20 \times 20 = 400$

(1 mark)

Q7

What is the value of $3ab$ when $a = 5$ and $b = 6$?

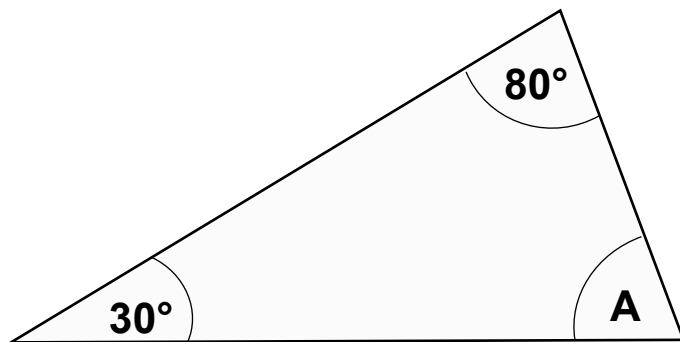
Substituting a for 5 and b for 6 gives $3 \times 5 \times 6$. $5 \times 6 = 30$ then $3 \times 30 = 90$

$$\frac{90}{\text{-----}}$$

(1 mark)

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Q8



Calculate the size of angle A.

$$\begin{array}{r} 180 \\ - 80 \\ - 30 \\ \hline 70 \end{array}$$

There are 180° in total in a triangle so subtracting the other angles leaves A

$$\underline{\hspace{1cm} 70 \hspace{1cm}}^\circ$$

(1 mark)

Q9

$$900 + 1500 \div 300 =$$

The order of operations, BIDMAS, needs to be followed. So the division is done first. $1500 \div 300$ can be considered as the fraction $1500/300$, which simplifies to $15/3 = 5$. Then $900 + 5 = 905$

$$\underline{\hspace{1cm} 905 \hspace{1cm}}$$

(1 mark)

Q10

$$147.206 - 95.438 =$$

$$\begin{array}{r} 147.206 \\ - 95.438 \\ \hline 51.768 \end{array}$$

$$\underline{\hspace{1cm} 51.768 \hspace{1cm}}$$

(1 mark)

Q11 A car can travel 480 miles on a full tank of petrol. The tank holds 60 litres. The fuel gauge shows there are 15 litres left in the tank.

How many more miles can the car travel before it runs out of petrol?

$$\frac{15}{60} = \frac{3}{12} = \frac{1}{4}$$
$$\begin{array}{r} 120 \\ 4 \overline{) 480} \end{array}$$

The tank is $15/60$ full. This simplifies to $1/4$. We can therefore assume that the car can travel $1/4$ of the 480 miles, which can be found by dividing the 480 by 4

$$\underline{\hspace{1cm} 120 \hspace{1cm}} \text{ miles}$$

(1 mark)

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Q12 The probability that a salesperson will get an order from a visit to a customer is $\frac{1}{4}$. She has 2 visits tomorrow.

What is the probability that she will get orders from **both** visits tomorrow?

Give your answer as a fraction in its simplest form.

$$\frac{1}{4} \times \frac{1}{4}$$

Order AND order. AND means to multiply the probabilities. To multiply fractions, multiply the numerators and multiply the denominators. $1 \times 1 = 1$ and $4 \times 4 = 16$. $1/16$ cannot be simplified

$$\frac{1}{16}$$

(1 mark)

Q13 This table shows the change in the number of employees in different departments of a company compared to last year.

Department	Change compared to last year
Admin	-1
Design	0
Production	+4
Packing	+2
Warehouse	-1
Marketing	-3

What is the **total** change in the number of employees compared to last year?

(tick one box)

- A 1 fewer
- B 1 more
- C 11 fewer
- D 11 more

Collecting together the positives and negatives. $4 + 2 = 6$. $-1 - 1 - 3 = -5$. Then $6 - 5 = 1$ so there is 1 more as the total change is +1

(1 mark)

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Q14 A manager wants to give a pay rise to everyone who is paid less than the average salary. This table shows the annual salaries of the employees in the company.

Employee	Salary (in £ thousands)
AJ ✓	16
TM	23
WF	23
SW	22
MT ✓	15.5
RD ✓	18.5
JR ✓	20
LS	23
PB	36

Tick all of the employees who are paid less than the median salary.

15.5, 16, 18.5, 20, 22, 23, 23, 23, 36

Putting all the salaries in order then crossing out from both ends until there is one left in the middle. This is the median. All employees who have a salary less than 22 therefore are paid less than the median salary

(1 mark)

Q15

The distance between two villages on a map measures 6 centimetres.

The map has a scale 1:25 000

What is the actual distance between the two villages in **kilometres**?

$$\begin{array}{r} 25000 \\ \times \quad 6 \\ \hline 150000 \end{array}$$

1.5 km

(1 mark)

25000 is 25000 times greater than 1. Therefore the actual distance is 25000 times greater than the measured distance. So multiplying the 6 by 25000 works out the actual distance in centimetres. This can be converted into metres by dividing by 100 as there are 100 centimetres in a metre. To divide by 100, move the decimal point twice to the left. Then this can be converted into kilometres by dividing by 1000 as there are 1000 metres in a kilometre. To divide by 1000, move the decimal point three places to the left. So the decimal point moves five places to the left in total

End of Section 1.

When you have finished you MUST hand this booklet in to the invigilator before you pick up your calculator to start Section 2.