

**Level 2 Functional Skills Mathematics
Sample 4**

**Duration: 25 minutes
Total marks: 15 marks**

SECTION 1 – CALCULATOR NOT PERMITTED

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.**

Please check that your name is correctly printed on the candidate barcode label. If not, please tell the invigilator before the start of the exam.

You should have the following for this assessment:

- a pen with black or blue ink
- a pencil
- 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.
- You may use a dictionary.
- 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

$$672 \div 21$$

$$\begin{array}{r} 032 \\ 21 \overline{)672} \\ \underline{21} 42,63 \\ \underline{21} 42,63 \\ 0000 \end{array}$$

32

(1 mark)

Q2

What is 0.825 as a percentage?

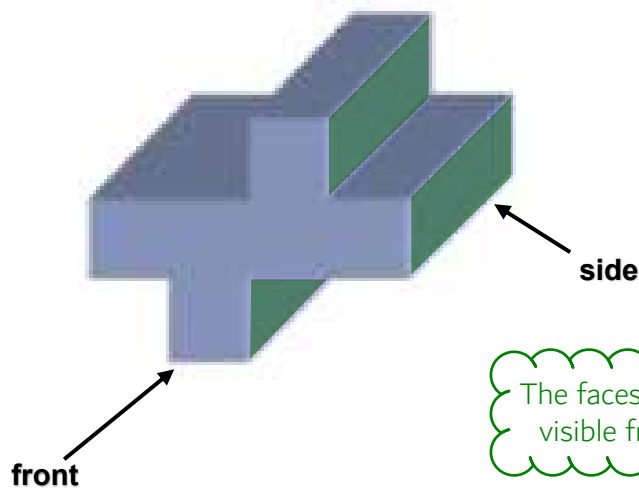
To convert a decimal to a percentage, multiply it by 100.
Move the decimal point twice to the right to do this

82.5 %

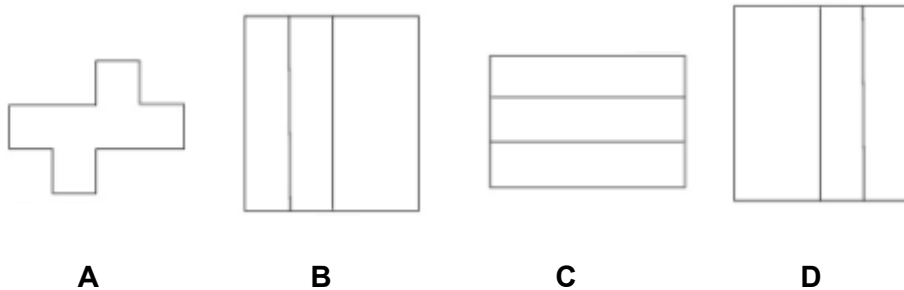
(1 mark)

Q3

The diagram shows a cross section of a metal bar.



Which one of the following is the **side elevation**?



A

B

C

D

C

(1 mark)

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Q4

$$\frac{\sqrt{15-6}}{3} =$$

$$\begin{aligned} 15 - 6 &= 9 \\ \sqrt{9} &= \pm 3 \\ \pm 3/3 &= \pm 1 \end{aligned}$$

Square rooting gives a positive and negative value

1 or -1

(1 mark)

Q5

A box of chocolates contains 4 hard centres, 6 soft centres and 2 plain chocolates.

A woman chooses a chocolate at random.

What is the probability that she takes either a hard centre or a soft centre?
Give your answer as a fraction in its lowest terms.

$$\frac{10}{12}$$

$$\begin{aligned} 4 + 6 &= 10 \text{ so there are 10 hard centre or soft centre.} \\ 4 + 6 + 2 &= 12 \text{ so there are 12 chocolates in total.} \end{aligned}$$

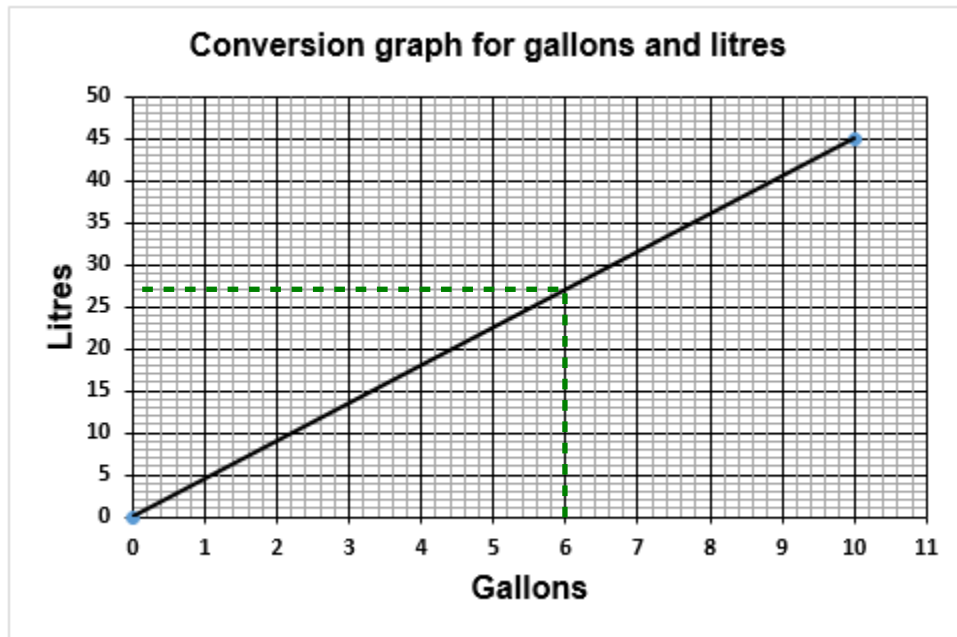
Expressing the 10 as a fraction of the 12 then simplifying by dividing both the numerator and denominator by 2

$$\frac{5}{6}$$

(1 mark)

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Q6



What is 6 gallons in litres, to the nearest litre?

Reading up from 6 gallons to the line
then across converts it into litres

27 litres

(1 mark)

Q7

What is 42% of 400?

$$\begin{array}{r} 42 \\ \times 4 \\ \hline 168 \end{array}$$

1% is 1/100 of 400, which is found by dividing it
by 100. Removing two zeros does this and gives 4.
Multiplying the value of 1% by 42 gives 42%

168

(1 mark)

.CG Maths.

Q8

An inspector checks the weights of bags of crisps.

Weight of bags of crisps in grams(g)				
24.4	25.5	25.0	25.3	24.4
26.5	25.5	24.9	24.4	25.5
25.5	25.1	25.5	24.2	24.5

What is the modal weight for the bags of crisps?

25.5 appears 5 times. This is more than any other weight so this is the mode

25.5 g

(1 mark)

Q9

$$18.369 + 3.197 - 2.475 =$$

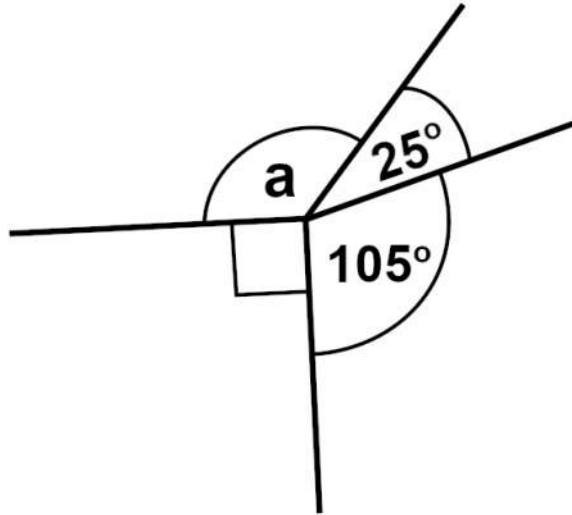
$$\begin{array}{r} 18.369 \\ + 3.197 \\ \hline 21.566 \\ - 2.475 \\ \hline 19.091 \end{array}$$

19.091

(1 mark)

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Q10



What is the value of angle **a**?

$$\begin{array}{r} 360 \\ - 90 \\ - 105 \\ - 25 \\ \hline 140 \end{array}$$

There are 360° in total around a point. So subtracting the other angles from 360° leaves the missing angle

Angle **a** 140°

(1 mark)

Q11

Eight bricklayers on a building site took 25 hours to build a wall.

The Site Manager needs a similar wall built.

He can hire five bricklayers to build this wall.

He needs to know how much longer it will take to build this wall.

How much **longer** will it take?

Show your working

$$\begin{array}{r} 25 \\ \times 8 \\ \hline 200 \\ + 040 \\ \hline 200 \\ \hline 200 \\ - 40 \\ \hline 160 \\ - 25 \\ \hline 135 \end{array}$$

Multiplying the 25 hours each worker did by the 8 bricklayers works out that 200 hours worth of work needs to be done. Dividing this work by the 5 bricklayers works out that it would take them 40 hours each. 40 hours is 15 more hours than 25

15 hours

(2 marks)

Q12

A woman needs to work out how long it will take to drive to York.

She checks the journey on a website.

The distance from her house to York is 80 miles.

20 miles of the journey are through roadworks with a speed restriction of 40mph.

She should drive the rest of the journey at an average speed of 50mph

How long should the journey take?

Show your working

$$\begin{array}{l} s^d t \\ \frac{20}{40} + \frac{60}{50} \\ \frac{5}{10} + \frac{12}{10} = \frac{17}{10} = 1\frac{7}{10} \end{array}$$

Writing the formula triangle for distance, speed, time. From the triangle, covering over t works out that time = distance/speed. Dividing the 20 miles by the 40mph expresses the fraction of an hour is taken for the journey through roadworks. $80 - 20 = 60$ so 60 of the miles can be done at 50mph. Dividing the 60 miles by the 50mph expresses the fraction of an hour is taken for the rest of the journey. Adding the two times gives the total time taken in hours. Dividing the numerator and denominator of $20/40$ by 4 and the numerator and denominator of $60/50$ by 5 to make the denominators the same so that they can be added to get $17/10$. Converting the improper fraction into a mixed number. $7/10$ of an hour is 42 minutes as there are 60 minutes in an hour and $7/10$ of 60 is 42

Time taken 1 hours 42 minutes

(3 marks)

End of Section 1