SAMPLE PAPER 1
Level 2 Functional Skills Mathematics

City & Guilds
A City & Guilds Group Business

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)

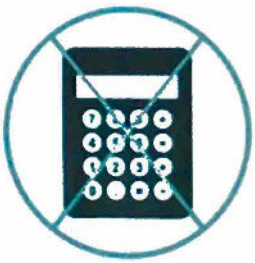
Centre number

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.



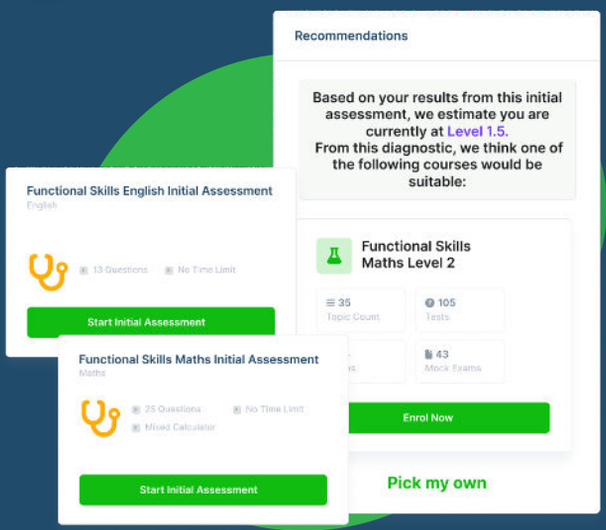
You must NOT use a protractor.
You must NOT use a calculator for Section 1.

General instructions

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

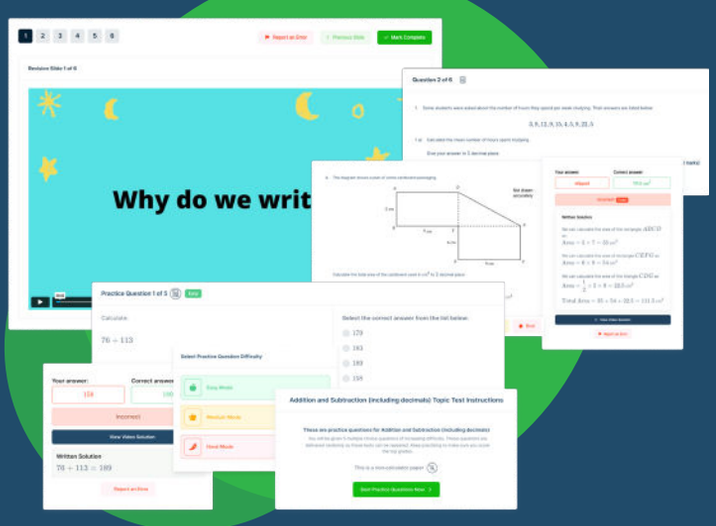
PASS FUNCTIONAL SKILLS

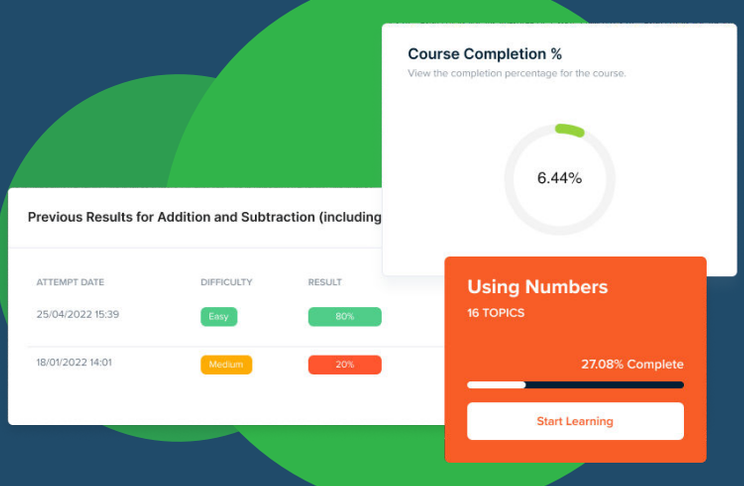
FUNCTIONAL SKILLS ONLINE COURSES



- Your answers are analysed to determine your Current Level
- Suggested courses for you to enrol on based on your calculated level
- Always know the level you are currently working at
- Determine when you are ready to sit your exam

- Explainer videos on every topic
- Quick-fire style mutiple choice questions
- Test your knowledge with exam-style questions
- Written solutions for all questions





- See your progress through as you progress through each topic area
- Get your average scores for practice questions, topic tests and mock exams
- View all practice question, topic test and mock exam attempts over time
- View historical attempts to analyse your progress over time

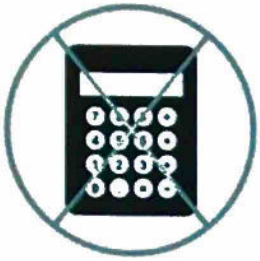
Or visit
passfunctionalskills.co.uk

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.



Q1

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

_____%

66.67%

(1 mark)

Q2

What is 14% of 200?

28

_____

(1 mark)

Q3

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

(tick one box)

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

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

A $5\frac{1}{4}$ ☐

B $5\frac{4}{6}$ ☐

C $6\frac{1}{4}$ ☑

D $6\frac{4}{6}$ ☐

(1 mark)

Q4

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

$\frac{75}{125} = \frac{3}{5}$

$\frac{3}{5}$

(1 mark)

Q5

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

Give your answer in its simplest form.

$\frac{7}{14} - \frac{4}{14} = \frac{3}{14}$

$\frac{3}{14}$

(1 mark)

Q6

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

$(8+12)^2 = 20^2 = 400$ 400

(1 mark)

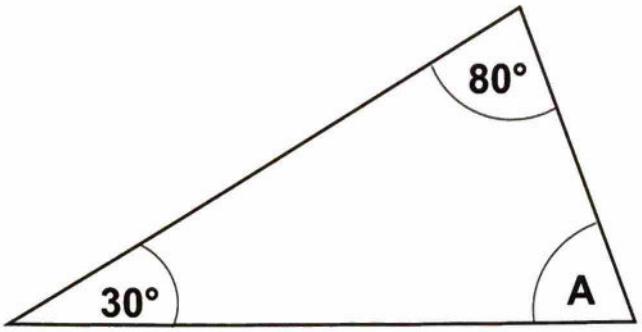
Q7

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

$3 \times 5 \times 6 =$ 90

(1 mark)

Q8



Calculate the size of angle A.

$180^\circ - 80 - 30 =$ 70 °

(1 mark)

Q9

900 + 1500 ÷ 300 =

$900 + \frac{1500}{300} = 900 + 5 =$ 905

(1 mark)

Q10

147.206 – 95.438 =

$$\begin{array}{r} 1\,47^{6}.\,2^{1}0^{9}6 \\ -\ 95.438 \\ \hline 51.768 \end{array}$$

51.768

(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?

$\frac{15}{60} = \frac{1}{4}$

$480 \times \frac{1}{4} = 120$

120 miles

(1 mark)

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.

$\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$

$\frac{1}{16}$

(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

-1

+3
+5
+4
+1

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 ☐

(1 mark)

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.

(1 mark)

15.5 16 18.5 20 22 23 23 23 26

median

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**?

1 : 25 000

1.5 km

(1 mark)

6 cm → 1.5 km

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.

SAMPLE PAPER 1
Level 2 Functional Skills Mathematics

City & Guilds
A City & Guilds Group Business

Duration: 1 hour 20 minutes
Total marks: 45

SECTION 2 - CALCULATOR 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*

• If you have used any additional answer sheets write the number of additional sheets in this box.
• Please ensure that you **staple** additional answer sheets to the **back** of this booklet, clearly labelling them with your full name, enrolment number, centre number and date in BLOCK CAPITALS.
• You must use a black or blue pen. You may use a pencil for charts and diagrams.
***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 may use a calculator for Section 2.

You must NOT use a protractor.

General instructions

- Read through each question carefully.
- Show your working out (where required).
- Write all your working out and answers in this booklet.
- Check your calculations and check that your answers make sense.

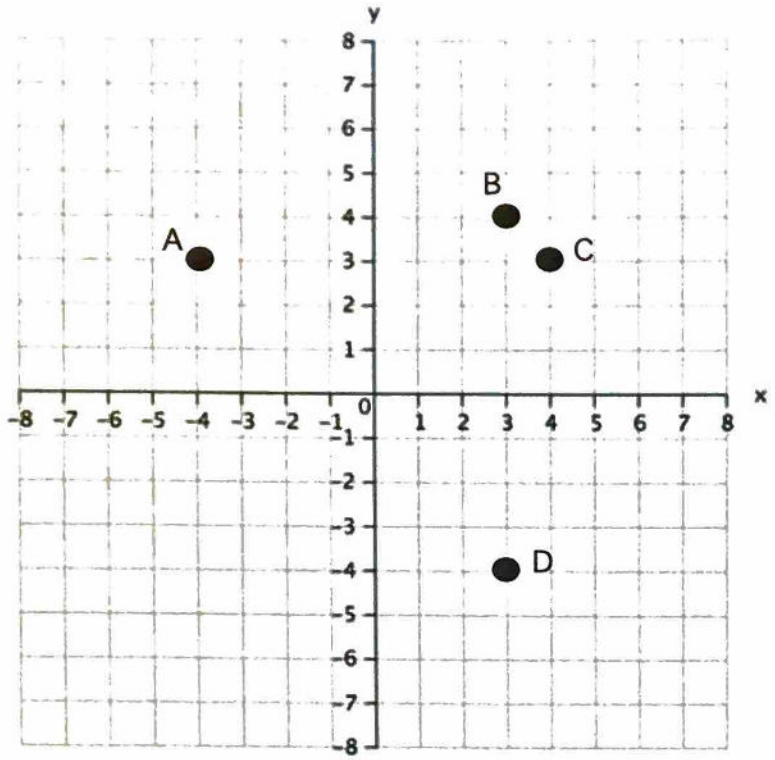
SECTION 2 - CALCULATOR PERMITTED

There are **45** marks in this section.

You should check all your work as you go along.

You may use a calculator.

Q1



Which point is at (3,4)?

(tick one box)

A. Point A ☐

B. Point B ☑

C. Point C ☐

D. Point D ☐

(1 mark)

Q2

1 gallon = 4.546 litres

10 litres in gallons is approximately

(tick one box)

A. 0.45 gallons ☐

B. 2.2 gallons ☑

C. 45.5 gallons ☐

D. 22 gallons ☐

(1 mark)

Q3

155	125	145	90	125	150	155
90	100	125	178	95	125	180

What is the mode of these numbers?

125

(1 mark)

Q4

Which one of the following lists is in increasing order?

(tick one box)

A. 0.1013 0.0827 0.0095 ☐

B. 0.1013 0.0095 0.0827 ☐

C. 0.0095 0.1013 0.0827 ☐

D. 0.0095 0.0827 0.1013 ☑

(1 mark)

Q5

The surface area of a sphere is $4\pi r^2$

A sphere has a radius (r) that measures 3cm

Use $\pi = 3.142$
or $\pi = \frac{22}{7}$

Work out the surface area of the sphere to the nearest cm^2.

A. $15cm^2$ ☐

B. $22cm^2$ ☐

C. $113cm^2$ ☑

D. $1421cm^2$ ☐

$4\pi(3)^2 = 36\pi$

$= 113.112$

(1 mark)

Q6 A man is going to New York for work. He wants to book a hotel online.

A friend says
'Remember the booking website will show the price in dollars. It will actually cost **more pounds** than the price shown, because of the exchange rate.'

The man checks the exchange rate because he thinks his friend is wrong. He thinks that the number of pounds will be **less** than the number of dollars shown.

Exchange rate **£1 = $1.24**

Who is right, the man or his friend?
Explain your answer.

Explanation

the man is correct. The number in $ will be 1.24 times (x) the number in £

(1 mark)

Q7 A newspaper report says that a company made £700,000 profit last year.
It says this was 12% more than the year before.

Work out how much profit the company made the year before.

Show all your working

$$\frac{£700,000}{1.12} = £625,000$$

Profit £ 625,000

(3 marks)

Q8

Income tax

Everyone can earn a certain amount of money without paying tax. This is called a Personal Allowance. They must pay tax on any earnings over this allowance.

Income tax Personal Allowance, 2018/2019	£11 850

This formula gives the amount of Income tax a person pays in a year

$$T = 0.2\,(y - p)$$

where T = income tax **for the year**
y = money earned per **year**
p = Personal Allowance

A caterer earns £1 375 per **month**.

How much income tax will she pay for the **year**?

Show all your working.

$T = 0.2(12 \times 1375 - 11850)$

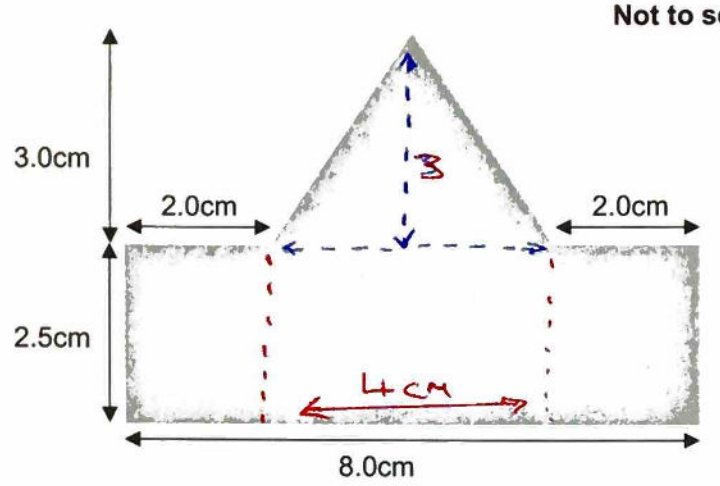
$= 930$

£ 930

(4 marks)

Q9 A worker has to set a machine to cut this shape from a piece of metal.

Not to scale



What is the area of the shape?

Show all your working.

$2.5 \times 8 = 20 \text{ cm}^2$

$\frac{1}{2} \times 4 \times 3 = 6 \text{ cm}^2$

26 cm²

(4 marks)

Q10 A photographer increases the price he charges to print photographs.
He wants to know if this affects his sales.

Last week, before the price increase, the average number of photos ordered was 12.

This week customers ordered:

Photos ordered	Number of customers
1 - 10	26
11 - 20	14
21 - 30	6
31 - 40	4
41 - 50	0
51 - 60	0

50

Midpoint	MP x Freq
5.5	143
15.5	217
25.5	153
35.5	142
	655

Does the price increase seem to have had an effect on the number of prints ordered per customer?
Explain your answer. Include calculations to support your decision.

Decision (yes/no) No

Explanation and supporting calculations

$\frac{655}{50} = 13.1$

the mean this week is 13.1
compared to last weeks 12
so average number of order
increased.

(4 marks)

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21 - 30	6
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41 - 50	0
51 - 60	0

50

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the mean this week is 13.1
compared to last weeks 12
so average number of order
increased.

(4 marks)

Q11 This table shows how much a garage pays its staff.

Pay rates	
Working day	**Rate**
Monday to Friday	Normal rate
Saturday or Sunday	1¼ x normal rate

Last week, a mechanic worked 7½ hours each day from Monday to Saturday. She did not work on Sunday.

Her normal rate of pay is £10.80 an hour.

Work out her **total** pay for last week.

Show all your working

$7.5 \times 5 \times 10.80 = 405$ +

$1.25 \times 7.5 \times 10.80 = 101.25$

506.25

£ 506.25

Use approximation to check your answer.

Do your check here

$5 \times 7 \times 10 = 350$

$1.25 \times 10 \times 8 = 100$

$350 + 100$

$= £450$

(4 marks)

Q12 A woman applies for a new job that pays £8.50 a week more (after tax).

She will work 5 days a week and drive to work, as she does in her job now.
The new job is 6 miles further from her house.

Her car travels 8.5 miles per litre of petrol
Petrol costs £1.26 per litre

Will the woman be better off with the new job after she takes the petrol into consideration?

Explain your answer. Include calculations to support your decision.

Decision (yes/no) No

Explanation and supporting calculations

$2 \times 6 \times 5 = 60$ extra miles

$\frac{60}{8.5} = 7.059...$

$7.059 \times 1.26 = £8.89$

So she is worse off now

(4 marks)

Q13 Your boss needs you to make some travel arrangements for him.

He will travel to Hull **4 days** every week for the next 6 months (26 weeks).

He needs to arrive at Hull at 8:30am and catch the train home at 5pm each day.

TRAIN TICKET PRICE INFORMATION

TRAINS TO HULL

TICKET TYPE:

DAY RETURN	£8.00
OFF-PEAK* DAY RETURN	£6.20

SEASON TICKETS VALID FOR:

ONE WEEK	£29.60
ONE MONTH	£113.70
ONE YEAR	£1184.00

(Price for season ticket covers all travel while the ticket is valid)

* **OFF-PEAK** tickets are **not** valid for travel between 0700 and 0900 or between 1500 and 1900

Which ticket type do you recommend?

Recommendation

1 Month ticket x 6

Explain your reasons. Include figures or calculations to support your decision.

Explanation and supporting calculations

6 x 113.70 = £682.2 Month

8 x 4 x 26 = £832 Day

all travel is at peak times

(5 marks)

Q14 A company has made some changes to the way its employees work.

The manager wants to know if these changes have made any difference to the number of days employees take off work because of illness.

She can't just compare the total days as there are fewer people working in each department after the changes.

She gives you this information about the employees in one department.

Number of days each employee took off sick in the year BEFORE the changes			
14	12	11	8
12	0	15	6
11	3	10	7
0	5	8	10
15	16	14	3

Number of days each employee took off sick in the year AFTER the changes		
12	0	2
11	3	7
14	10	10
3	8	9
8	4	4

Did the changes make any difference to the average number of days that employees took off sick?

Explain your findings to the manager. Show calculations to support your explanation.

Decision (yes/no) Yes

Explanation and supporting calculations

Before : mean

$\frac{180}{20} = 9$

After : mean

$\frac{105}{15} = 7$

(5 marks)

Q15 A café owner wants to know how many cold drinks she is likely to sell next week.

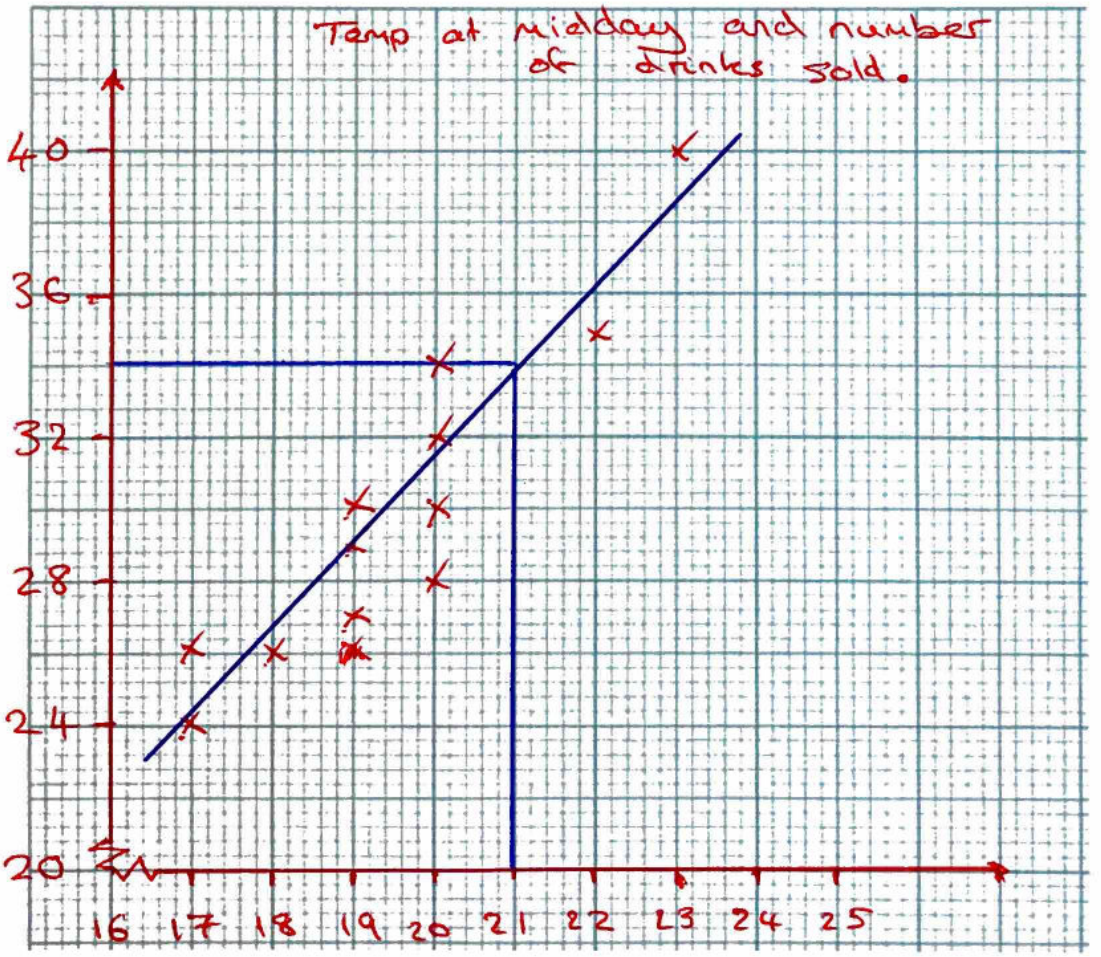
She makes a record of sales of drinks over the last two weeks:

Day	M	T	W	Th	F	S	M	T	W	Th	F	S
Temperature (°C) at midday	17	18	17	19	20	20	19	19	22	23	20	20
Number of cold drinks sold	24	26	25	30	32	28	27	29	35	40	30	34
Number of hot drinks sold	34	36	32	34	27	29	37	39	25	25	28	28

She wants to use this information to see if she can predict the number of **cold** drinks she is likely to sell based on the temperature forecast for a particular day.

Use the graph paper to show clearly the data she has collected in a way that will help her to do this.

Space for working



The weather forecast for next week says it will be 21°C on Monday.

What can you tell the café owner about how many cold drinks the café is likely to sell on Monday?
Show clearly on your graph paper how you found your answer.

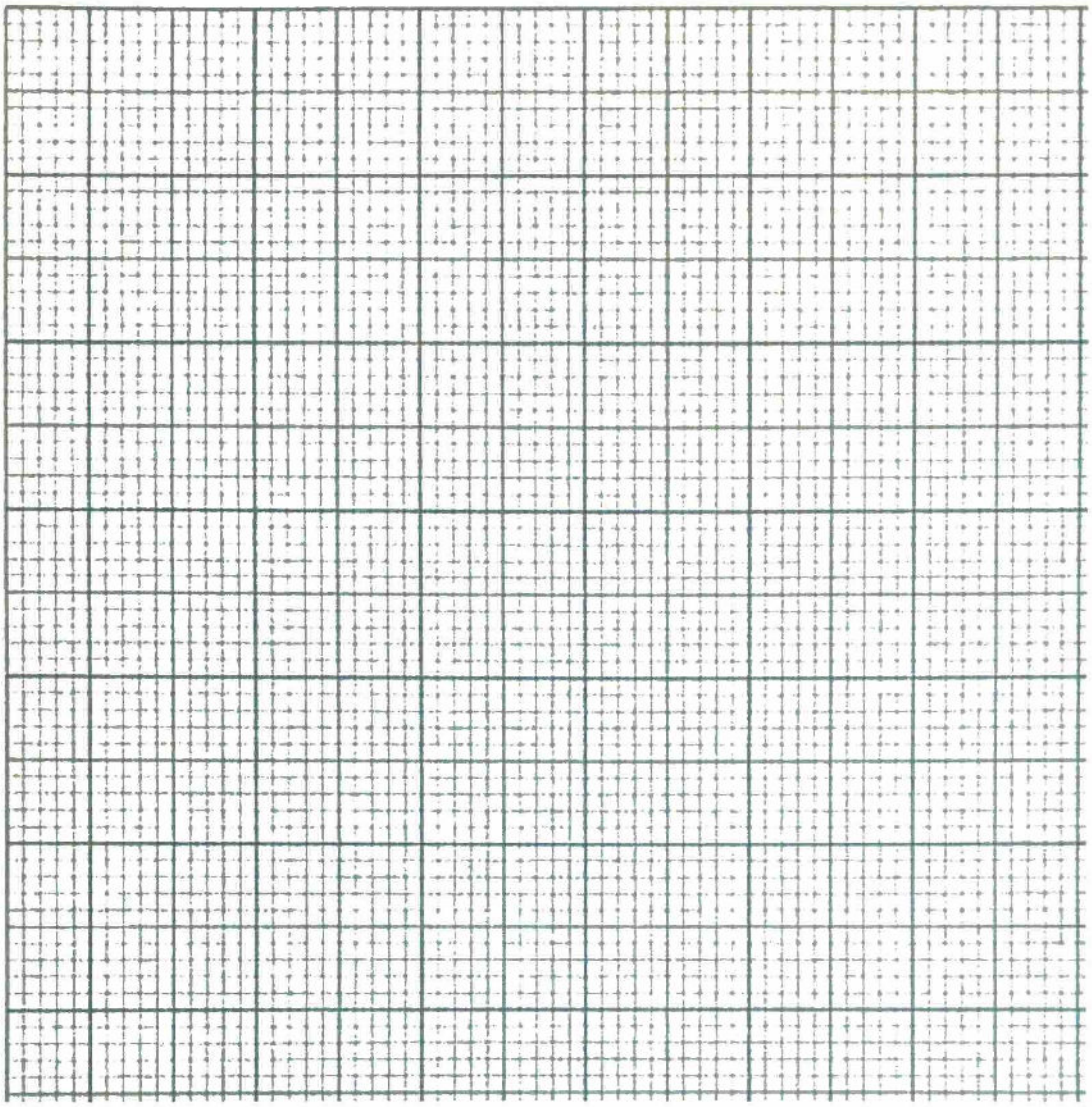
Answer

≈ 34 drinks

(6 marks)

End of Section 2

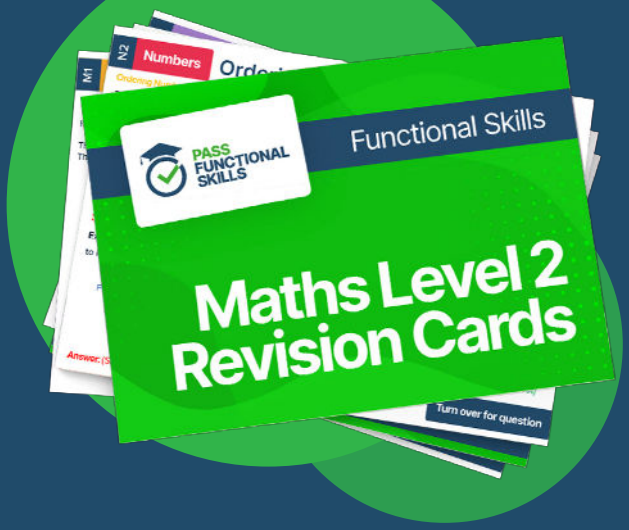
Spare graph paper for Question 15



End of assessment

PASS FUNCTIONAL SKILLS

Functional Skills Maths
Level 2 Practice Papers



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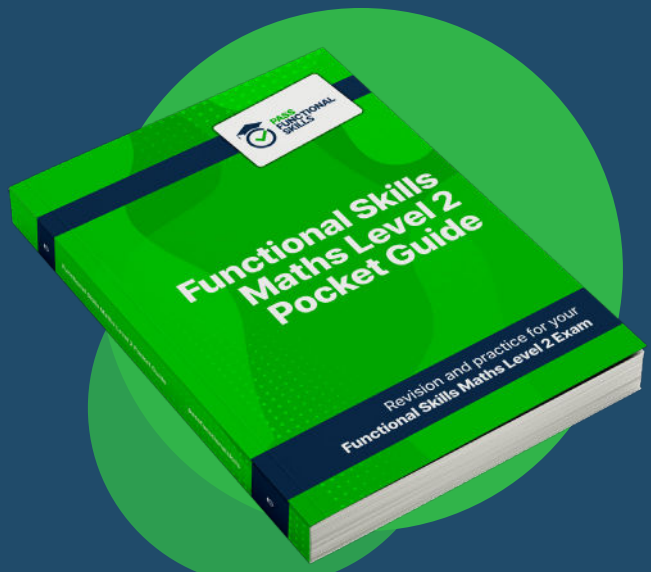
Functional Skills English Level 2
Practice Papers & Revision Cards



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Level 2 Pocket Revision Guide

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