

Level 2 Functional Skills Mathematics

Sample 4

Duration: 25 minutes
Total marks: 15 marks



SECTION 1 – CALCULATOR NOT PERMITTED

Candidate name (first, last)

[illegible][illegible]

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

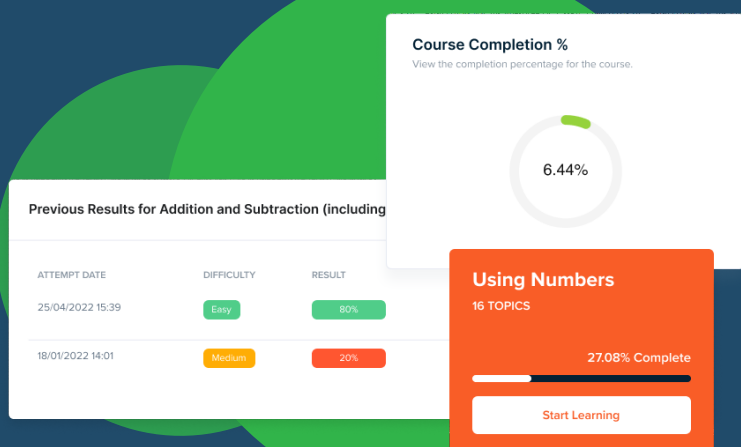
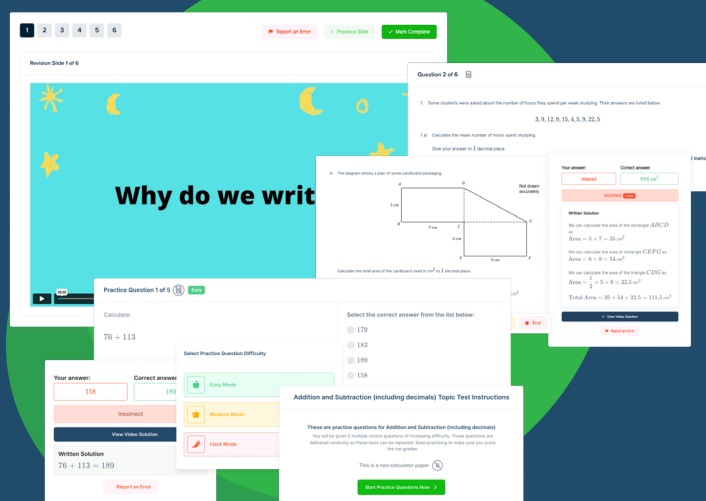
- Read through each question carefully.
- You may use a dictionary.
- Write all your answers in this booklet.
- Check your calculations and check that your answers make sense.



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 multiple 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

$$672 \div 21$$

$$\begin{array}{r} 21 \times 30 = 630 \\ 672 - 630 = 42 \\ 42 \div 21 = 2 \end{array}$$

$$\underline{32}$$

(1 mark)

Q2

What is 0.825 as a percentage?

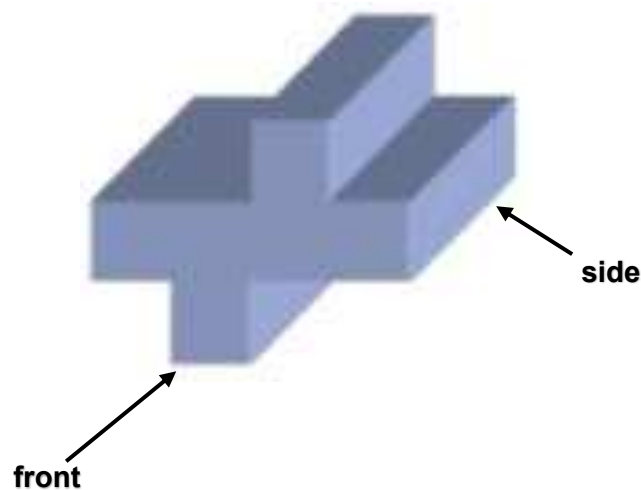
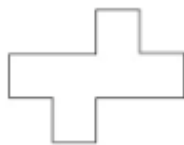
$$\frac{825}{1000} = \frac{82.5}{100}$$

$$\underline{82.5} \%$$

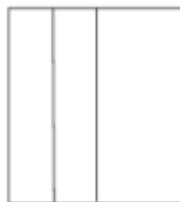
(1 mark)

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)

Q4

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

$$\frac{\sqrt{9}}{3} = \frac{\pm 3}{3} = \pm 1$$

$$\frac{\pm 1}{} \quad (1 \text{ mark})$$

Q5

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

A woman chooses a chocolate at random.

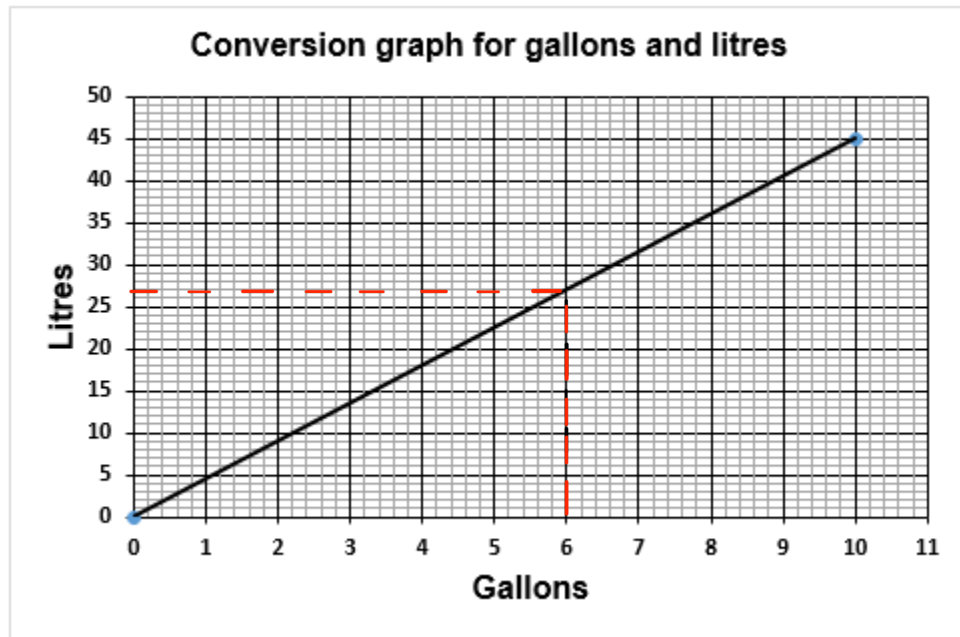
What is the probability that she takes either a hard centre or a soft centre?
Give your answer as a fraction in its lowest terms.

$$\begin{aligned} 4 + 6 + 2 &= 12 \\ 4 + 6 &= 10 \\ \frac{10}{12} &= \frac{5}{6} \end{aligned}$$

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

(1 mark)

Q6



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

27 litres

(1 mark)

Q7

What is 42% of 400?

$$100\% = 400$$

$$10\% = 40$$

$$1\% = 4$$

$$2\% = 8$$

$$4 \times 40 + 8 = 168$$

168

(1 mark)

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?

→ must
common

25.5 g

(1 mark)

Q9

$$18.369 + 3.197 - 2.475 =$$

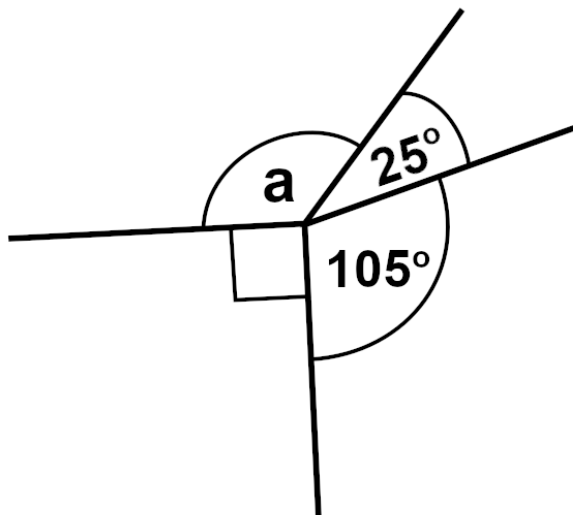
$$\begin{array}{r} 18.369 \\ + 3.197 \\ \hline 21.566 \\ 11 \end{array}$$

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

19.091

(1 mark)

Q10



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

$$360 - 90 - 25 - 105 = 140$$

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

$$\frac{8}{5} = 1.6$$

$$1.6 \times 25 = 40$$

$$40 - 25 = 15$$

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

$$S = \frac{d}{t}$$

$$t = \frac{d}{S}$$

$$\frac{20}{40} = 0.5 \text{ hours}$$

$$80 - 20 = 60$$

$$\frac{60}{50} = 1.2 \text{ hours}$$

$$1.2 + 0.5 = 1.7 \text{ hours}$$

$$= 1 \text{ hour } 42 \text{ mins}$$

Time taken 1 hours 42 minutes

(3 marks)

End of Section 1

Level 2 Functional Skills Mathematics
Sample 4



Duration: 1 hour 20 minutes
Total marks: 45 marks

SECTION 2 – CALCULATOR PERMITTED

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.**

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
- a calculator.



You must NOT use a protractor.

General instructions

- Read through each question carefully.
- You may use a dictionary.
- 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.
- There are additional pages at the back of this booklet if you run out of space or ask the invigilator if you need additional sheets of paper.



SECTION 2 – CALCULATOR PERMITTED

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

You should check all your work as you go along.

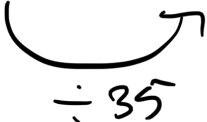
You may use a calculator.



Q1

What is 35 as a fraction of 490? Give your answer in its simplest form.

$$\frac{35}{490} = \frac{1}{14}$$



$$\frac{\boxed{1}}{\boxed{14}}$$

(1 mark)

Q2

$$1\frac{3}{8} + 3\frac{9}{16} = 1\frac{6}{16} + 3\frac{9}{16} = 4\frac{15}{16}$$

(tick one box)

A $4\frac{1}{2}$ ☐

B $4\frac{3}{8}$ ☐

C $4\frac{3}{4}$ ☐

D $4\frac{15}{16}$ ☒

(1 mark)

Q3

Which of these has the smallest value?

(tick one box)

A $6.048 \div 24$

☐

$= 0.252$

B $0.095 \div 5$

☒

$= 0.019$

C $1.032 \div 12$

☐

$= 0.086$

D $1.274 \div 7$

☐

$= 0.182$

(1 mark)

Q4

$$V = \frac{bhl}{2}$$

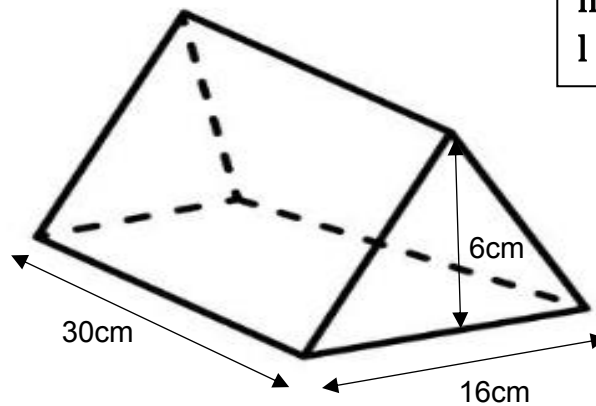
 v = volume in cm^3 b = base in cm h = height in cm l = length in cm

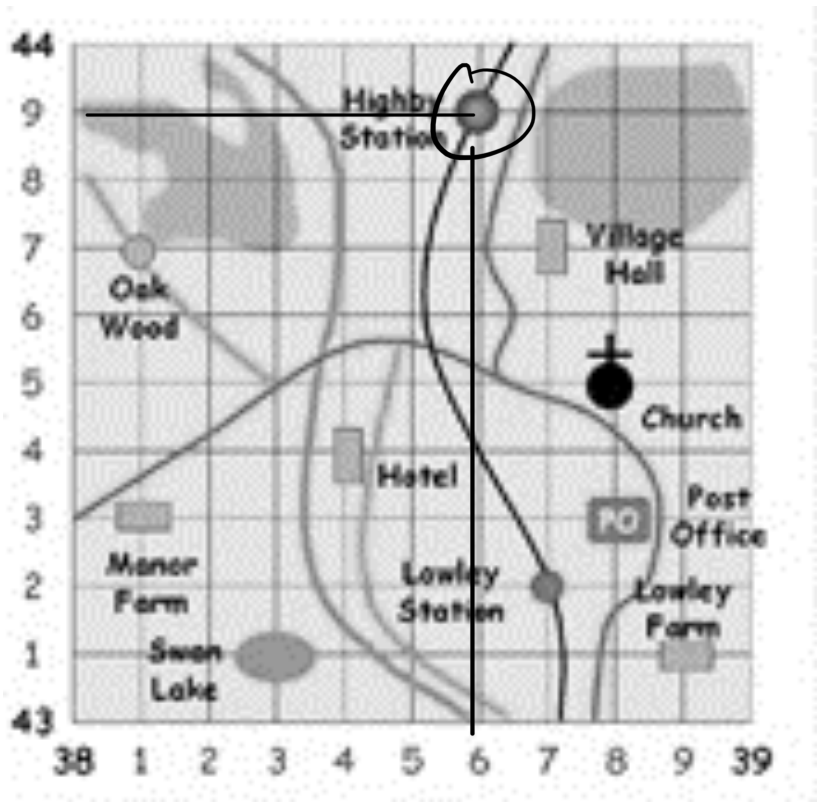
Diagram not to scale

What is the volume of this triangular prism?

$$\frac{30 \times 6 \times 16}{2} = \frac{2880}{2} = 1440 \text{ cm}^3$$

(1 mark)

Q5



What is the coordinate for Highby Station?

(tick one box)

- A

396449

☐
- B

386439

☒
- C

439386

☐
- D

449396

☐

(1 mark)

Q6

A woman is going to Spain for a holiday.

She wants to book a hotel online.

She finds a hotel that charges €84 euros per night.

She thinks this will be about £100 per night.

Exchange rate pound to euro £1 = €1.12

Is she right? Explain your answer.

Is she right? (tick one box) Yes ☐ No ☒ £1 = €1.12
£100 = €112

Explanation

A euro is worth less than
a pound £100 = €112 not
€84

(1 mark)

Q7

An apprentice hairdresser needs to prepare a solution to colour a client’s hair.

The client wants high lift shades.

The apprentice hairdresser measures out 75ml of developer.

Hair shade	Ratio of hair colour to developer
Grey coverage and fashion shades	1 : 1
High lift shades	1 : 1.5
Hair lightener	1 : 2

What amount of hair colour should she measure out?

Show your working

$75 \div 1.5 = 50$

50 ml

(2 marks)

Q8

A woman has a new fitness watch.

She uses this formula to calculate her **step length**.

$$\text{Step length}(\text{feet}) = \frac{\text{a measured distance in feet}}{(\text{the number of steps taken})}$$

Her **measured distance** was **20 feet** and the number of **steps taken** was **16**.

In her first week she walks 67118 steps.

She wants to know how many kilometres she walked in the first week.

$$1 \text{ foot} = 0.0003048 \text{ km}$$

What distance did she walk?

Show your working

$$\frac{20}{16} = 1.25$$

$$1.25 \times 67118 = 83897.5 \text{ feet}$$

$$83897.5 \times 0.0003048 = 25.6$$

Distance walked 25.6 km

(3 marks)

Q9

A secretary needs to order 8 boxes of paper clips. Each box costs £7.67

The table below shows the discount offered on large orders.

Total order	Discount
£40 - £54.99	5%
£55 - £79.99	6.5%
£80 or more	8%



What amount will the secretary have to pay?

Show your working

$$8 \times 7.67 = 61.36$$

$$100 - 6.5 = 93.5\%$$

$$0.935 \times 61.36 = 57.37$$

£ 57.37

(3 marks)

Q10

The Chairperson of a committee needs to write a report for a council meeting.

She needs to compare the fly tipping incidents reported in the **local area** with the fly tipping incidents reported **nationally**.

National Report

This year local authorities in England dealt with an **increase of 8%** of fly tipping incidents on those reported in last year.

This table shows the numbers of fly tipping incidents reported in the local area.

Year	Numbers of fly tipping incidents reported
Last year	11 193
This year	11 649

What will the Chairperson write in her report about the comparison between the local incidents and the national incidents? Explain your answer using figures.

Show your working

$$11649 - 11193 = 456$$

$$\frac{456}{11193} \times 100 = 4.07\%$$

Explanation

The local increase was much lower at 4.07% compared to the 8% national

(4 marks)

Q11

A golf coach wants to tell a beginner how he is performing.

He tells the beginner that he should be able to hit the ball 150 yards on average.

He tests the beginner and records the distance of each hit.

<i>mid</i>	Distance travelled (d) in yards	Frequency
137.5	$135 \leq d < 140$	4
142.5	$140 \leq d < 145$	13
147.5	$145 \leq d < 150$	17
152.5	$150 \leq d < 155$	6
		<u>40</u>

Is the beginner performing at the average level? Explain your answer using figures

Show your working

$$137.5 \times 4 + 142.5 \times 13 + 147.5 \times 17 + 152.5 \times 6 = 5825$$

$$5825 \div 40 = 145.625 \text{ average}$$

Is the beginner performing at the average level?

(tick one box)

Yes ☐

No ☒

Explanation

The average of 145.625 yards is lower than the 150

(5 marks)

Q12

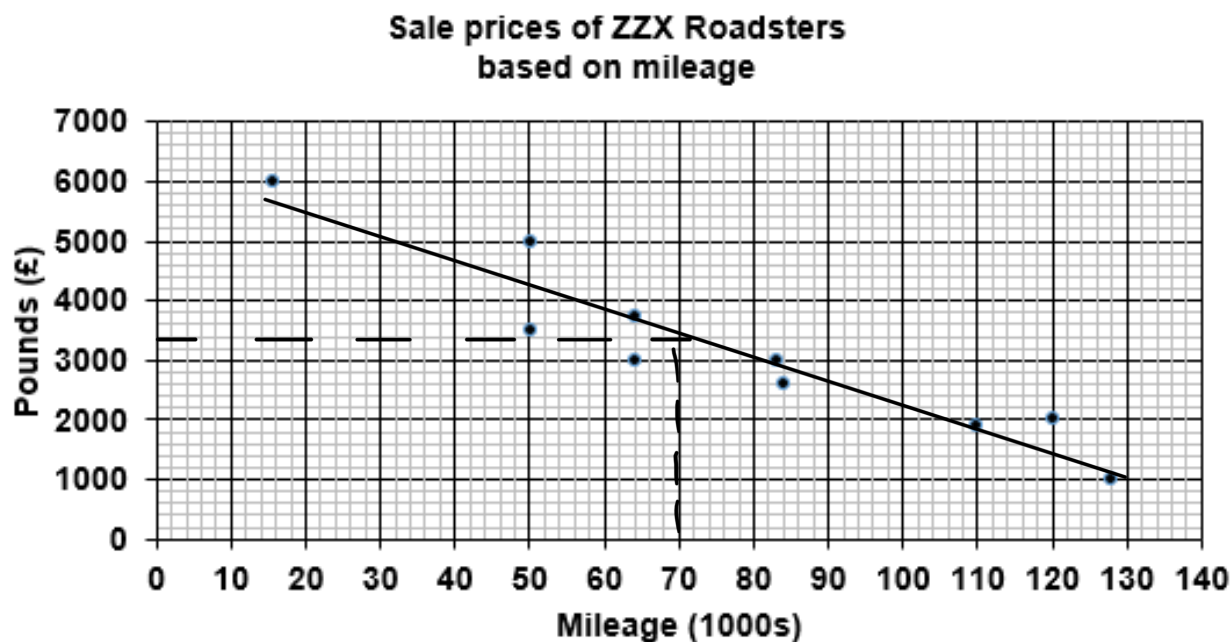
A garage sells used cars.

When a customer buys a car, the garage owner will offer an amount to pay for their old car.

A customer brings in a ZZX Roadster with a mileage of 70 000.

The garage owner estimates the value of this car based on the mileage.

He uses this website graphic to find this value.



He wants to make a first offer to the customer 30% below this value in order to make a profit when he resells it.

What amount should he offer the customer?

Explain your answer by drawing a trend line and marking the graph to show how you decided the amount.

Estimated value of the customer's car £ 3400

Show your working

$$30\% = 0.3$$

$$1 - 0.3 = 0.7$$

$$0.7 \times 3400 = 2380$$

First offer to customer £ 2380

(4 marks)

Q13

A 22-year-old man wants to apply for this job.

He wants to work out how much his annual take home pay will be.

Staff required
for busy town centre retail store.

Shifts available 6am – 1pm
Includes one hour break unpaid.
6 days per week
National Minimum Wage

National Minimum Wage (NMW) rates

NMW (age)	Apprentice	16-17 years	18-20 years	21-24 years
Rate per hour (£)	£3.90	£4.35	£6.15	7.70

He knows he has to pay income tax and national insurance and what is left is his take home pay.

TAX INFORMATION

Income tax is taken from your earnings after your personal allowance has been deducted.

Income Tax rated and bands

Band	Taxable income	Tax rate
Personal allowance	up to £12 500	0%
Basic rate	£12 501 to £50 000	20%
Higher rate	£50 001 to £150 000	40%

He is told that his national insurance will be about £600 National Insurance in the year.

What will the man's annual pay be?

Show your working.

$$\begin{aligned}
 &6 \text{ am} \rightarrow 1 \text{ pm} = 7 \text{ hours} \\
 &6 \text{ hours paid} \\
 &6 \times 7.70 = 46.2 \text{ per day} \\
 &46.2 \times 6 \times 52 = 14414.40 \\
 &14414.40 - 12500 = 1914.40 \\
 &1914.40 \times (1 - 0.2) = 1531.52 \\
 &12,500 + 1531.52 - 600 = 13431.52 \\
 &\quad \quad \quad \text{£ } \underline{13431.52}
 \end{aligned}$$

(6 marks)

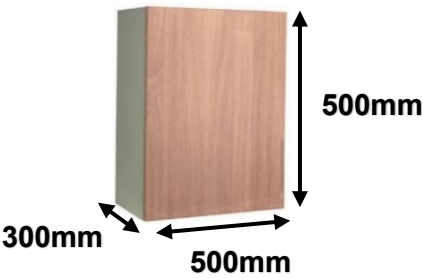
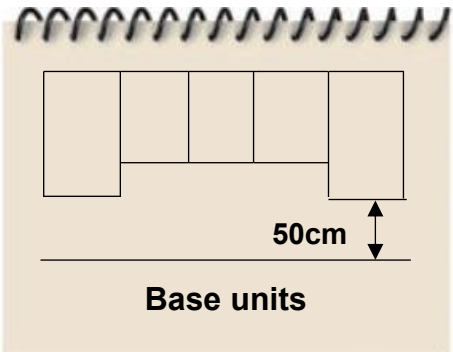
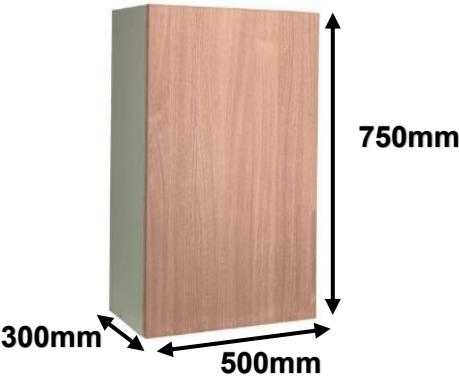
Q14

A kitchen designer needs to draw a scale plan for a customer's new kitchen.

The customer gives the kitchen designer this sketch to show how she would like the cupboards to fit above the worktop.

The base of the large cupboard needs to be 50cm above the top of the worktop.

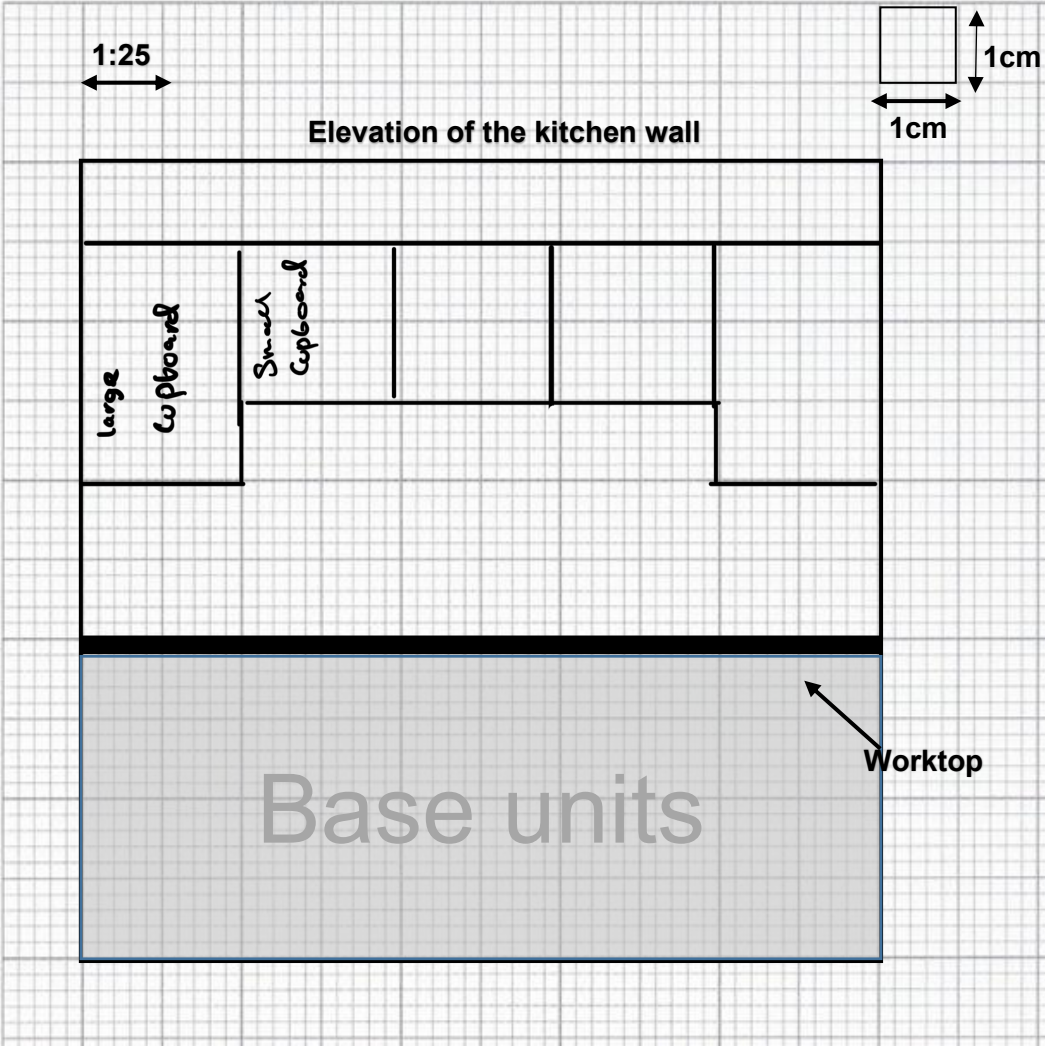
Diagram not to scale



Use the scale plan of the elevation of the kitchen wall to show where the kitchen designer should draw the cupboards.

Space for working

$$\begin{array}{rcl} 50 & \div & 25 = 2 \\ 75 & \div & 25 = 3 \end{array}$$



(6 marks)

Q15

A health club conducts a survey to compare the average number of hours of sleep of members.

Members report their results each week.

A woman takes part in this survey. She wears a fitness band, which records the number of hours she sleeps.

She wants to compare her own results week by week.

Last week she slept a mean time of 5 hours 19 minutes with a range of 4 hours 49 minutes.

This is the record for this week.

This week	Duration of sleep
Monday	8 hours 22 minutes
Tuesday	6 hours 49 minutes
Wednesday	5 hours 59 minutes
Thursday	5 hours 49 minutes
Friday	6 hours 44 minutes
Saturday	7 hours 16 minutes
Sunday	5 hours 55 minutes

Big

Small

$2814 \text{ mins} = 46 \text{ hours}$

54 mins

What are the results that the woman reports to the health club?

What comparison can she make between her own results?

Make **two** comments using figures.

Show your working

range: Biggest - Smallest

8hr 22 = 502 minutes

5hr 49 = 349 minutes

502 - 349 = 153 minutes

2 hours 33 mins

Comment 1

mean =

$2814 \div 7 = 402 \text{ mins} = 6 \text{ hours}$

42 mins

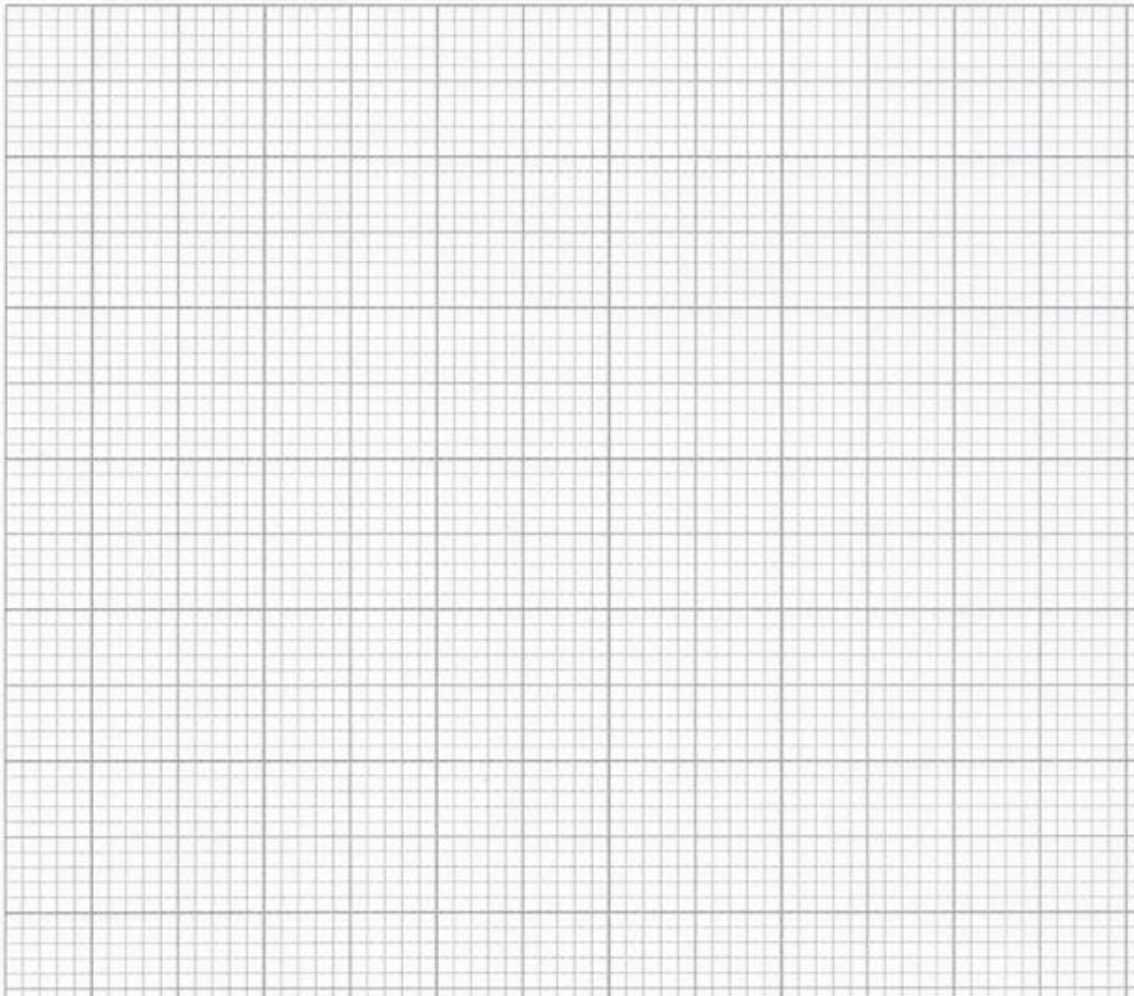
Mean has increased, she is getting more sleep on average

Comment 2

Range has decreased, sleep is more consistent

(6 marks)

Spare graph paper for Question 14

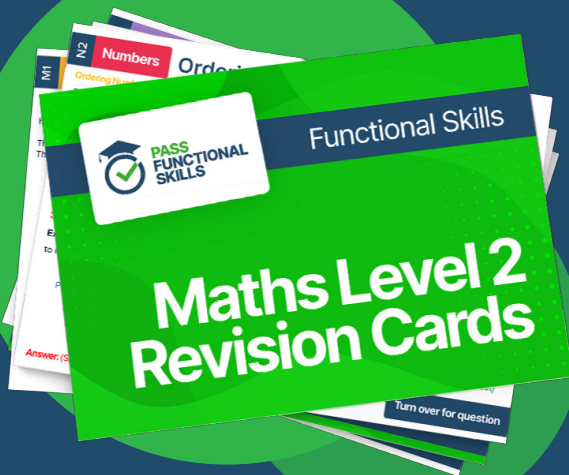


Extra space for working out and answers

End of section 2



Functional Skills Maths
Level 2 Practice Papers



Functional Skills Maths
Level 2 Revision Cards



Functional Skills English Level 2
Practice Papers & Revision Cards



Functional Skills Maths
Level 2 Pocket Revision Guide