Functional skills Mathematics

Calculator

Diagnostic Assessment

Level 2

Name: ……

Date: ……

Tutor: ……

Vocational Area: ……

Functional Skills Maths: Diagnostic Assessment

FS Maths Assessment at Level 2

Why are you doing this assessment?

The purpose of this assessment is to find out how we can help you achieve success in your FS Maths. We will use this assessment to identify areas of strength and areas for development with your Maths skills.

On completion of this assessment your tutor will set you individual targets to support the development of your skills.

What you need to do

- Complete the assessment in handwritten form (you may use a calculator on the **designated calculator paper only**)
- You are allowed **75 minutes** to complete the assessment.
- You must clearly show all your working out and calculation methods.

1 A set of numbers is 4 6 6 7 8 8 8 9

Circle the mode.

5 7 7.5 8

2 Work out $\frac{9.386 + 20.904}{2.5}$

Give your answer as a decimal

Answer _____

3 The probability of event A happening is 0.15

Work out the probability of event A **not** happening.

Answer _____

4 Circle the calculation that increases £260 by 17%

260 + 0.17 260 × 0.17 260 + 1.17 260 × 1.17

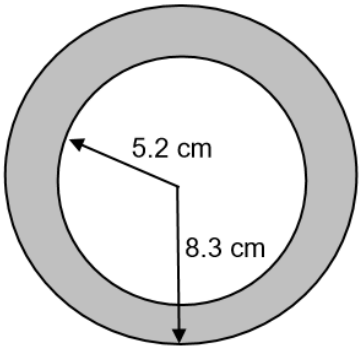
5 Write in digits four hundred and three thousand, seven hundred and twenty.

Answer _____

6 Work out $5\frac{3}{4} - 1\frac{1}{8}$

Answer _____

7 A circle of radius 5.2 cm is inside a circle with radius 8.3 cm

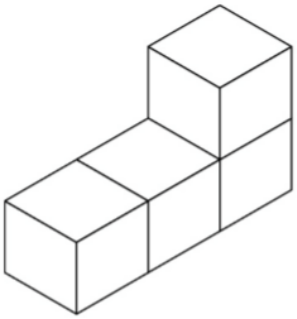


Not drawn accurately

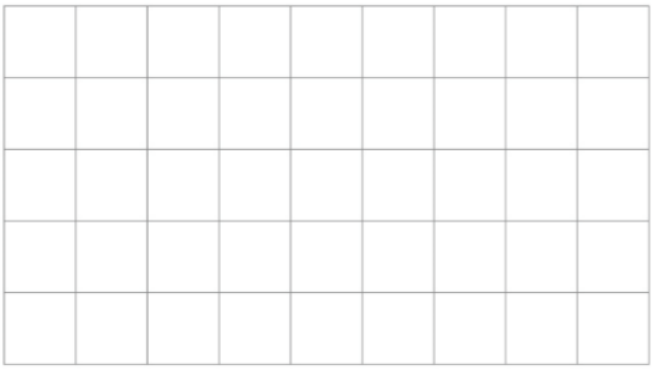
Work out the shaded area.

Answer _____ cm^2

8 Each of the **four** cubes in this L-shape has side length 1 centimetre.



On this centimetre grid draw a plan view of the L-shape.



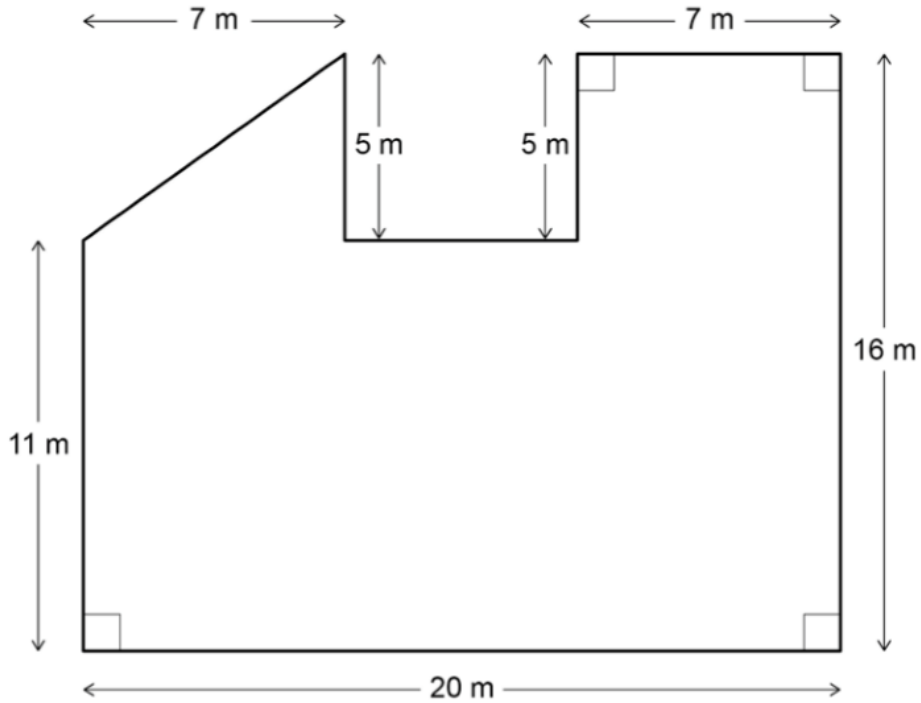
9 Work out the percentage decrease from 5200 to 4108

Answer _____ %

10 **Playground**

Levi works for a company that designs and builds playgrounds.

Here is a sketch of the plan for a new playground.



10 **(a)** Work out the area of the playground.

Answer _____ m^2

10 (b) The surface of the playground will be covered with rubber chips and resin.

Levi uses 14 kg of rubber chips per square metre

He also uses resin, in the ratio

mass of rubber chips : mass of resin = 5 : 1

The resin is supplied in 25 kg tubs.

How many tubs does Levi need?

Answer _____

10 (c) The table shows the items needed for the playground.

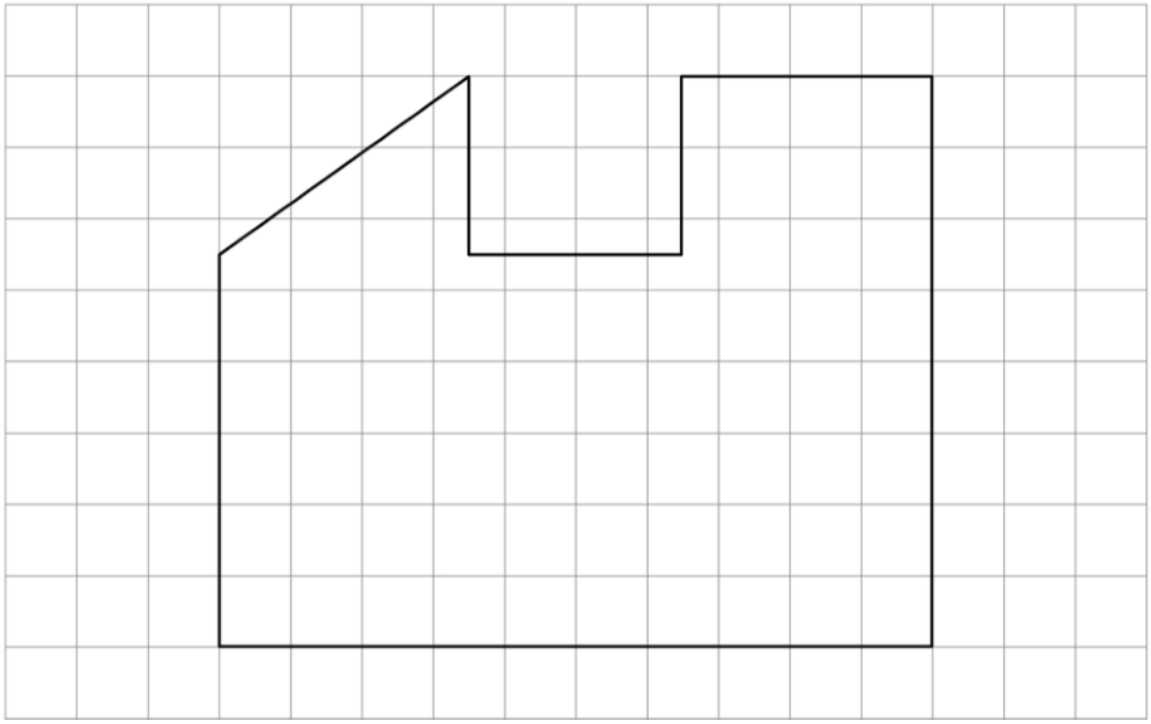
	Space needed
1 climbing frame	6 m by 6 m square
1 swing set	10 m by 4 m rectangle
1 sandpit	semicircle with radius 6 m
2 rockers	each 2 m by 2 m square

The playground is drawn to a scale of 1 to 200 on a centimetre grid.

On the grid, design a possible playground.

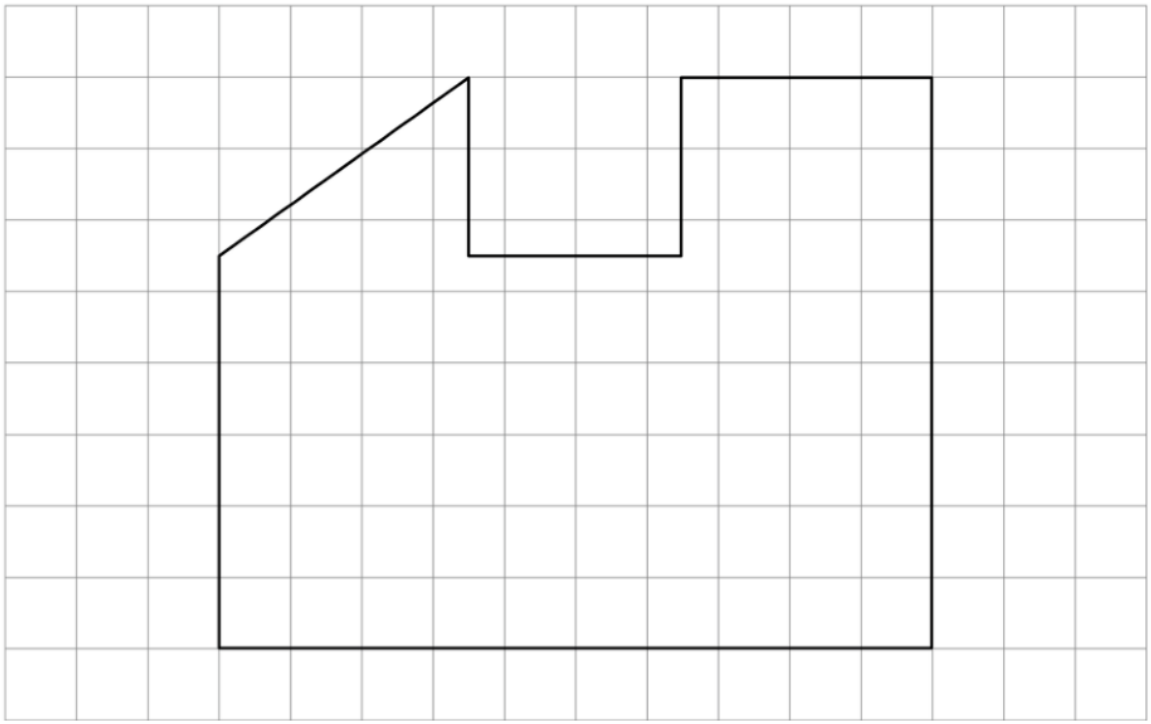
Practise on this grid.

Scale: 1 to 200



Put your answer on this grid.

Scale: 1 to 200



11 Fundraising

Padma is organising a fundraising event for a charity.

The event will include

a 3-course meal

a singer.

11 (a) Padma is working out how much to charge for a ticket to the event.

The table shows the costs she expects to have.

Hire of venue	£1660
Meal	£14.25 per person
Fee for singer	£400
Other costs	£350

Padma expects 230 people to attend the event.

She wants to make a profit of at least £5000 to give to the charity.

Work out the smallest amount she should charge for a ticket.
Give your answer to a suitable degree of accuracy.
You **must** show your working.

Answer £ _____

11 (b) Padma wants to have a number of flyers printed to promote the event.
She sees these adverts for two printing companies

North Printers	**Speedy Printers**
Flyers: 200 for £3.25	Flyers: 1000 for £18 12.5% discount on orders over £70

It would cost £97.50 to have the flyers printed at North Printers.
How much would it cost to have the same number of flyers printed at Speedy Printers?

Answer £ _____

11 (c) At the event, Padma sells 800 raffle tickets for £2 each.

Altogether, the people on one table spend £110 on raffle tickets.

Padma tells the people on the table,

"The probability that someone on this table wins the first prize is more than 5%"

Is she correct?

You **must** show your working.

12 **Quiz**

Eve and Stefan each take part in a quiz every week.
They look at their scores in the first 12 weeks that the quiz takes place.

Here is a summary of the data for Eve.

Range	15
Mean	41.25

The frequency table shows the data for Stefan.

Score	Frequency
37	1
38	1
39	0
40	4
41	2
42	0
43	4

12 (a) Stefan says,

"My scores were more consistent."

Is he correct?
Give a reason for your answer.
You **must** show your working.

12 (b) Eve says,

"On average, my scores were higher."

Is she correct?
Give a reason for your answer.
You **must** show your working.

12 (c) In the next quiz there are two multiple choice questions.
Each question has 3 options to choose from.
Stefan does not know the answers to the questions.
He chooses at random an answer to each question.

What is the probability that both his answers are correct?

Answer _____

13 **Candle company**

Maya runs a company that makes and sells candles.

13 (a) The mass of wax, in grams, needed to make a candle can be worked out using

$$W = v \times \left(\frac{100 - f}{100}\right) \times 0.83$$

W is the mass of wax, in grams

v is the volume of the candle, in cubic centimetres

f is the percentage of fragrance in the candle

The company makes a candle in the shape of a cylinder.
The candle has radius 4 cm and height 15 cm
The candle has 10% fragrance.

Work out the mass of wax, in kilograms, required to make 2500 of these candles.

Answer _____ kg

13 (b) The company sells large candles for £9.60 each, including 20% VAT.

How much VAT is there on each large candle?

Answer _____

13 (c) Katie works for Maya.

She has an annual income of £19410

She has a personal allowance of £11 850

She pays 20% tax on the rest of her income.

How much income tax should she pay in a year?

Answer £ _____