TQUK Functional Skills Qualification in Maths at Level 2

Examination Past Paper 3

Please complete the details below using black or blue ink. Use BLOCK CAPITALS.

Learner Name: _____

Learner Number: _____

Date: _____

Centre Name: _____

Instructions:

- Read each question **carefully**
- Answer **all** questions
- Write your answers **clearly** in the spaces provided
- **Check** your answers.

Information:

- This examination has **two** sections. These are clearly labelled
- You are **not allowed** to use a calculator for Section A
- You **are allowed** to use a basic calculator for Section B
- The **maximum** mark for this examination is 60
- The marks available for each question are shown in **bold** beneath each question.

Items:

- You **will need** a pen with black or blue ink, a pencil, a ruler and an eraser (for diagrams, graphs and charts only)
- You **will need** a basic calculator for Section B only
- You **will need** a protractor and a compass
- You **will not** need any other stationery or equipment.

Time allowed:

30 minutes for Section A (Non-calculator)
90 minutes for Section B (Calculator)

Do not open this examination paper until you are told to do so.

For examiner use only

	Marks available	Marks awarded	Second marks
Section A	15		
Section B	45		
Total marks	60		

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Section A: Non-calculator

There are **15 marks** available in this section.
You must **not** use a calculator in this section.
You will have **30 minutes** to complete this section.

1. Work out 0.238 + 0.05

$$\begin{array}{r} 0.238 \\ +\ 0.05 \\ \hline 0.288 \end{array}$$

Answer	0.288

[1]

2. Work out 0.8 × 0.222

$$\begin{array}{r} 222 \\ \times\ \ 8 \\ \hline 1776 \\ {\scriptstyle 1\ \ 1\ \ \ } \end{array}$$

so 0.1776

Answer	0.1776

[1]

Questions continue on the following page

3. A company has 200 employees and 2 offices.

Employees are split across both offices as shown in the table below:

	Office A	Office B
Part-time employees	64	48
Full-time employees	16	72

One person is chosen at random.

What is the probability that the person chosen works full time in office B?

Give your answer as a percentage.

$\frac{72}{200} = \frac{36}{100} = 36\%$

Answer	36 %

[2]

4. Round 39.4528 to the nearest whole number.

Use your rounded number to **estimate** the answer to 39.4528 × 2

Show your working.

$39.4528 \approx 39$

$39 \times 2 = 78$

Answer	78

[2]

5. Idris sees this mobile phone in a sale:

Mobile phone
Was £95.00
Now 12% off

How much money will Idris save buying the phone in the sale?

10% of £95 = £9.50

1% of £95 = £0.95 (×2)

2% of £95 = £1.90

12% of £95 = £9.50 + £1.90

= £11.40

Answer	£ 11.40

[2]

6. Work out $10^2 - 25 \times 4$

= 100 − 25 × 4

= 100 − 100

= 0

Answer	0

[2]

Questions continue on the following page

7. Work out:

$$5\frac{1}{3}+4\frac{1}{5}$$

Give your answer as a mixed number.

4 + 5 = 9

$\frac{1}{3}+\frac{1}{5}=\frac{5}{15}+\frac{3}{15}=\frac{8}{15}$ so $9\frac{8}{15}$

Answer	$9\frac{8}{15}$

[2]

8. Alex has just been on a cruise:

- the cruise ship travelled 4320 miles
- it took 10 days of non-stop sailing.

Alex thinks the average speed of the cruise ship was 20 miles per hour.

Is Alex correct?

Show how you decide.

10 days = 10 × 24 hrs = 240 hrs

Speed = distance ÷ time

= 4320 ÷ 240

= 432 ÷ 24

= 18 mph

↑ not 20 mph

$$24\overline{)432}=18$$

24 48 72 96 120 144 168 192

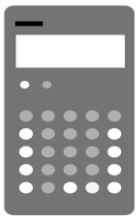
Answer	No

[3]

End of Section A.

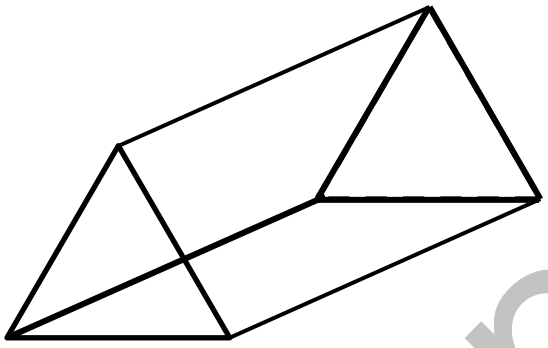
Section B begins on Page 6.

Section B: Calculator



There are **45 marks** available in this section.
You **can** use a basic calculator in this section.
You will have **90 minutes** to complete this section.

1. What is this shape?



Answer	Triangular prism

[1]

2. Put these numbers in order starting with the lowest:

1 025 600 –102 560 –85 956 1 102 560

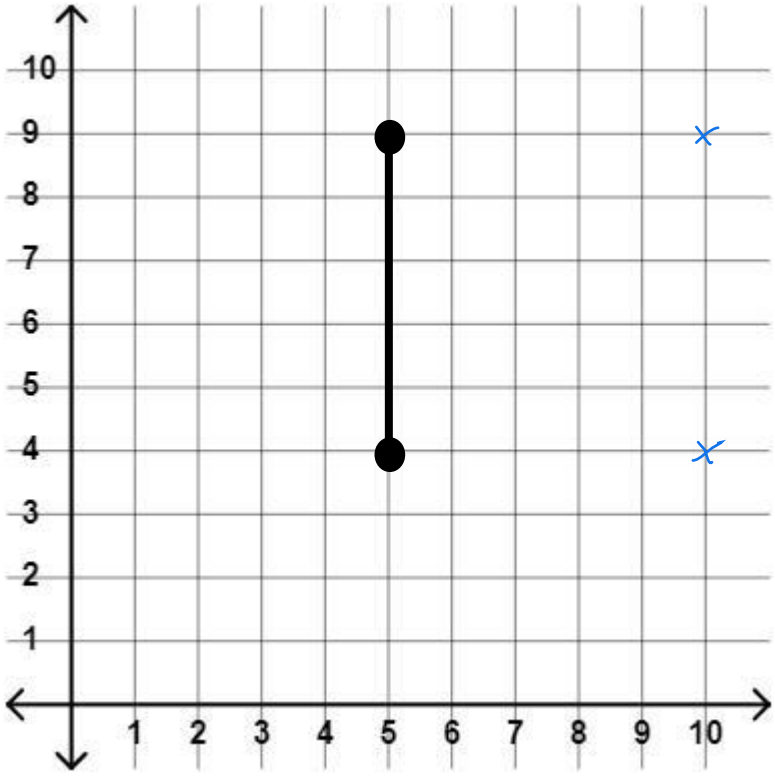
Answer	–102 560	–85 956	1025600	1102 560
	Lowest	→		**Highest**

[1]

3. Ezra is going to put a shed in a garden.

The shed is in the shape of a square.

The coordinate grid shows where two corners and one edge of the square will go.



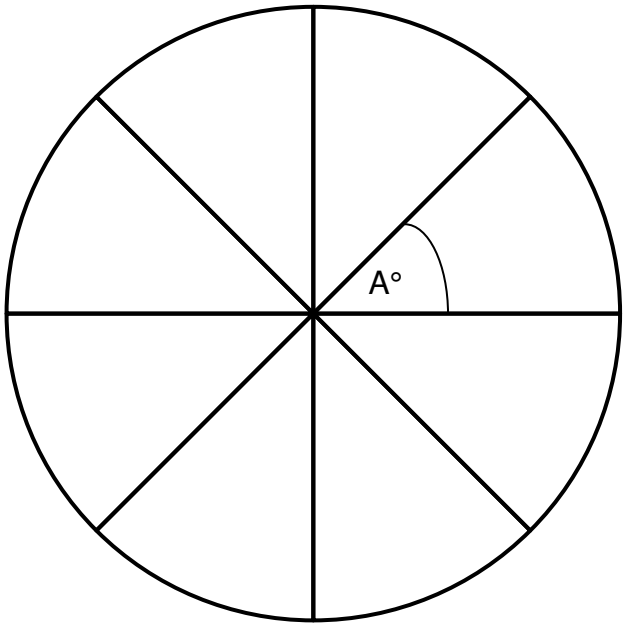
What are the possible coordinates for the other **two** corners of the square?

Answer	(10 , 4) and (10, 9)

[2]

Questions continue on the following page

4. A circle is divided into 8 equal sections as show below:



Calculate the value of A.

360 ÷ 8 = 45°

Answer	45 °

[2]

5. Write this fraction:

$$\frac{29}{40}$$

(a) as a decimal

(b) as a percentage.

$29 \div 40 = 0.725$ $0.725 \times 100 = 72.5\%$

Answer	**(a) Decimal:** 0.725	**(b) Percentage:** 72.5%

[2]

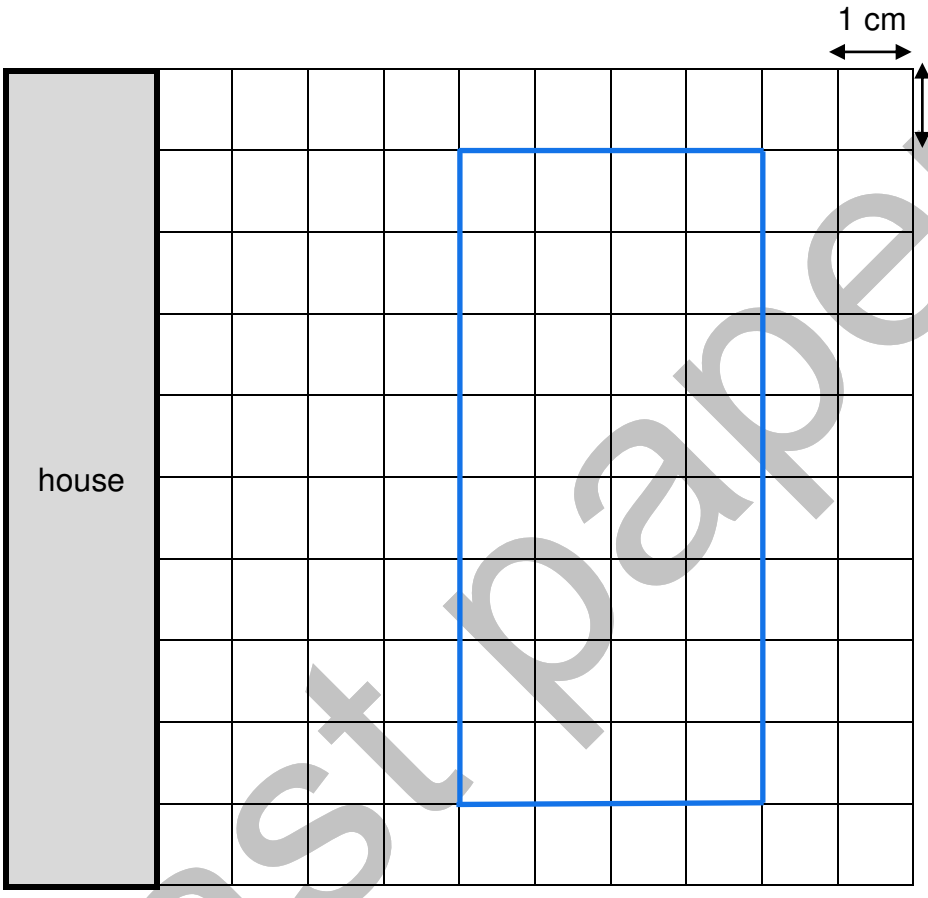
Questions continue on the following page

6. Charlie wants to build a pond in a garden.

The pond needs to be a rectangle with:

- a length of 2 metres and a width of 1 metre
  8 squares 4 squares
- **at least** 1 metre away from the house.
  4 squares

Draw a possible position for the pond on the scale diagram below:



grid : real life
1cm : 25cm
4cm : 100cm
↑
So 4cm on grid represents 1m in real life

[2]

7. Last year 825 500 people visited a museum.

The manager is set a target to increase the number of visitors by 22%.

The manager thinks this will be more than 1 005 000 visitors.

Is the manager correct?

Show how you decide.

↑
100% + 22%
= 122%
= 1·22

825 500 × 1·22 = 1 007 110

↑

Yes, more than 1 005 000

Answer	Yes

[3]

Questions continue on the following page

8. Leslie needs to put a fence around a pond.

The pond is in the shape of a circle with a diameter of 4.26 meters.

Leslie buys 13.5 metres of fencing.

Has Leslie bought enough fencing?

Show how you decide.

Use π = 3.14

circumference = 3.14 × 4.26
= 13.3764m of fencing needed
↑
Yes, 13.5m is enough

Answer	Yes

[3]

9. Taylor books a holiday.

The next day, their friend books the same holiday for £690 **after** receiving a 4% discount.

How much more did Taylor pay for the holiday?

100 % − 4 % = 96 %
= 0·96

£690 ÷ 0·96 = £718·75

Taylor paid £718·75 − £690 = £28·75 more

Answer	£ 28·75

[3]

Questions continue on the following page

10. Chen sells cakes.

The table below shows the ingredients in one cake:

Ingredient	Grams
Flour	275
Sugar	200
Baking powder	5

total : 480

A customer wants to know what fraction of the cake is sugar.

Chen tells the customer $\frac{7}{12}$

Is this correct?

Show how you decide.

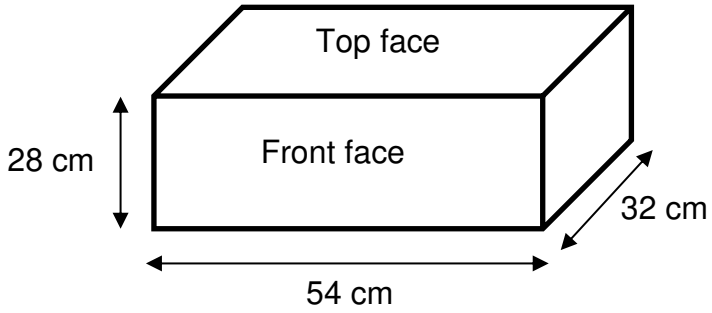
Sugar is $\frac{200}{480} = \frac{20}{48} = \frac{10}{24} = \frac{5}{12}$

No, not $\frac{7}{12}$

Answer	No

[3]

11. Lee wants to paint the front face and top face of this cuboid as part of an art project:



Not drawn to scale

Lee will paint yellow, green and white stripes in the ratio 5 : 3 : 2

How much of the cuboid will be painted yellow?

Give your answer in square centimetres (cm^2).

front face = $54 \times 28 = 1512\ cm^2$
top face = $54 \times 32 = 1728\ cm^2$
} total area to be painted is $1512 + 1728 = 3240\ cm^2$

$5 + 3 + 2 = 10$ parts total so 10 parts = $3240\ cm^2$ (÷10)
1 part = $324\ cm^2$
5 parts = $1620\ cm^2$ (×5)
↑ Yellow paint

Answer	1620 **cm^2**

[4]

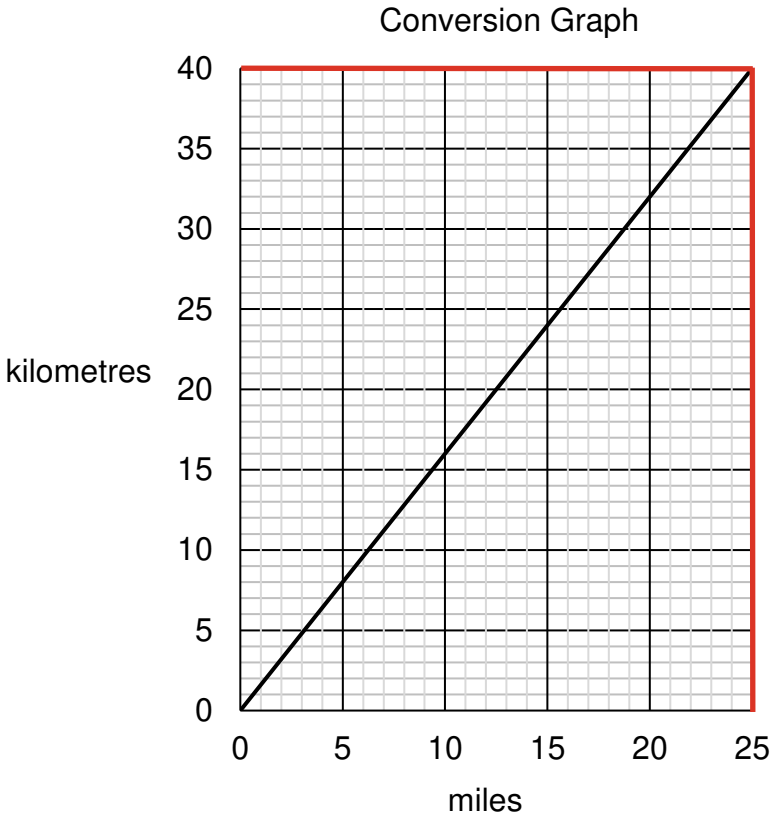
Questions continue on the following page

12. Harper is planning a road trip with this information:

- the total distance is 1600 **kilometres**
- Harper only wants to drive a maximum of 225 **miles** each day.

How many whole days will Harper need to complete the 1600 km?

Use this graph to convert between kilometres and miles.



40 km = 25 miles

Show your working.

If 40 km = 25 miles
÷40 ↓ ÷40
1 km = 0.625 miles
×1600 ↓ ×1600
1600 km = 1000 miles

1000 ÷ 225 = 4.44... days

So 5 whole days

Answer	5 **days**

[4]

13. Over a period of six weeks, Jamie sold chocolate cupcakes and lemon cupcakes.

The number of chocolate cupcakes Jamie sold each week is shown below:

Number of chocolate cupcakes sold					
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**
91	85	64	68	100	72

total
480

The number of lemon cupcakes Jamie sold is summarised below:

Lemon cupcakes sold	
Mean number sold per week	84
Range	20

Jamie claims:

a) "On average, I have sold more chocolate cupcakes per week"

b) "The chocolate cupcake sales are more consistent".

Are both of Jamie's claims correct?

Give reasons for your answers.

Show working here:

mean for chocolate = 480 ÷ 6 = 80

range for chocoldte = 100 − 64 = 36

Reason - claim a):

No – mean for lemon cakes is higher

Reason - claim b):

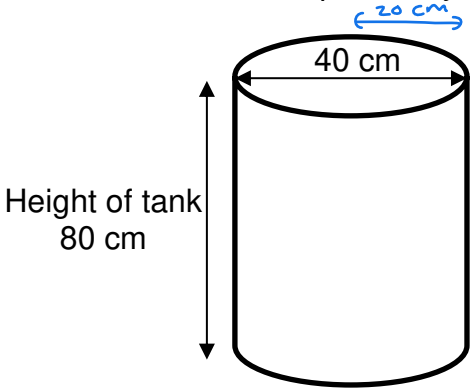
No – range for lemon is lower

[4]

Questions continue on the following page

14. Ali is setting up a saltwater fish tank.

The fish tank is in the shape of a cylinder.



Not drawn to scale

Ali uses this formula to work out how many grams of salt to add to the tank:

Amount of salt in grams = $\left(\frac{\text{volume of tank}}{1000}\right)$ multiplied by 35

Ali thinks the tank will need more than 3.75 kilograms of salt.

Is Ali correct?

Show how you decide.

Use π = 3.14

Volume of tank = 3.14 × 20 × 20 × 80
= 100 480 cm^3

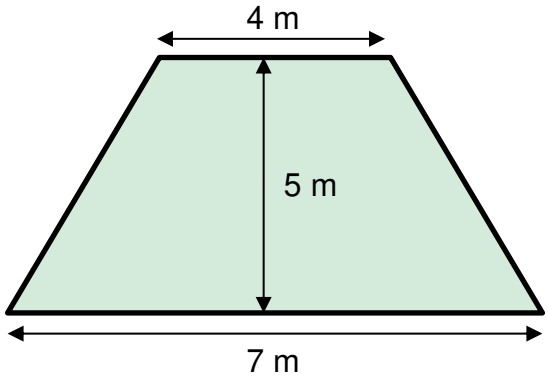
Amount of salt = $\frac{100\,480}{1000}$ × 35
= 100.48 × 35
= 3516.8 g ÷ 1000
= 3.5168 kg

↑
No, not more than 3.75kg

Answer	No

[5]

15. Riley wants to estimate how much it will cost to lay a patio in the garden below:



Not drawn to scale

Riley finds these prices online:

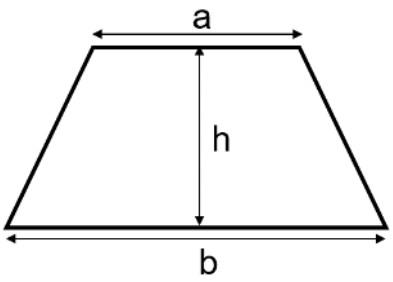
Price per square metre (m^2)					
£85	£100	£75	£130	£150	£135

Riley uses the median price to estimate how much it will cost to lay the patio.

How much does Riley estimate the patio will cost?

Use:

$$\text{Area} = \frac{(a+b)h}{2}$$



Show your working.

Answer box is on the next page

Area of lawn = $\frac{(4+7) \times 5}{2} = \frac{11 \times 5}{2} = \frac{55}{2} = 27.5\,m^2$

prices in order: 75, 85, 100, 130, 135, 150

median = $\frac{100+130}{2}$ = £115

cost will be £115 × 27.5 = £3162.50

Answer	£ 3162.50

[6]

This is the end of the assessment.