TQUK Functional Skills Qualification in Maths at Level 2

Examination Paper (Sample Assessment Paper 2)

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 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 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		

This page is intentionally left blank.

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 0.872 + 0.15

$$\begin{array}{r} 0.872 \\ +\ 0.150 \\ \hline 1.022 \\ {\scriptstyle 1\ \ 1} \end{array}$$

Answer	1.022

[1]

2. Work out 2.205 × 4

$$\begin{array}{r} 2205 \\ \times\ \ \ \ 4 \\ \hline 8820 \\ {\scriptstyle 2} \end{array} \qquad 8.820$$

Answer	8.82

[1]

Questions continue on the following page

3. A cyclist cycles 3 miles in 10 minutes.

What is the cyclist's average speed in miles per hour (mph)?

x6 (3 miles → 10 mins) x6
(18 miles → 60 mins)

So 18 miles in one hour

Answer	18 **mph**

[2]

4. Write 0.86:

(a) as a fraction

(b) as a percentage.

Answer	**(a) Fraction:** $\frac{86}{100}$	**(b) Percentage:** 86 %

[2]

5. Jordan goes out for lunch.

The bill comes to £20

Jordan wants to leave extra money as a tip.

The extra money is 18% more than the bill.

What is the total amount that Jordan will pay?

1% of £20 is 20 ÷ 100 = £0.20

18% of £20 is £0.20 × 18 = £3.60

Total is £20 + £3.60 = £23.60

Answer	£ 23.60

[2]

Questions continue on the following page

6. Work out the median of these numbers:

5000 3000 2500 4250 5500 6600

2500 3000 4250 5000 5500 6600

median = $\frac{4250 + 5000}{2}$

$= \frac{9250}{2}$

$= 4625$

$$2 \overline{)9'2\,5'0} \quad 4\,6\,2\,5$$

Answer	4625

[2]

7. A map has a scale of 1 : 50 000

A school and a supermarket are 2.5 centimetres (cm) apart on the map.

How far apart are the school and supermarket in real life?

Give the units in your answer.

2.5 × 50 000 = 125 000.0 cm in real life

```
  50000
×    25
 250000
1000000
1250000
```

Answer	125 000 cm

[2]

Questions continue on the following page

8. A company gives its staff 6 pizzas to share.

Each pizza is cut into 8 slices.

On the first day, the staff eat 3 whole pizzas and 5 additional slices. ← $3\frac{5}{8}$

On the next day, they eat another 10 slices of pizza. ← $\frac{10}{8}$

How much pizza is left after the second day?

Give your answer as a mixed number.

$6 - \left(3\frac{5}{8} + \frac{10}{8}\right)$

$= 6 - \left(\frac{29}{8} + \frac{10}{8}\right)$

$= 6 - \frac{39}{8}$

$= \frac{48}{8} - \frac{39}{8} = \frac{9}{8} = 1\frac{1}{8}$

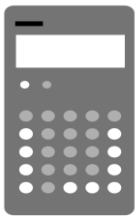
Answer	$1\frac{1}{8}$

[3]

End of Section A.

Section B begins on Page 8.

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. Put these numbers in order starting with the lowest:

–865 –811 –820 –814

Show any working here:				
Answer	− 865	− 820	− 814	− 811
	Lowest	→		**Highest**

[1]

2. There are 2.54 centimetres (cm) in 1 inch.

How many inches are there in 127 cm?

127 ÷ 2·54 = 50 inches

Answer	50

[1]

Questions continue on the following page

3. Calculate $12^2 - 3 \times 2.1$

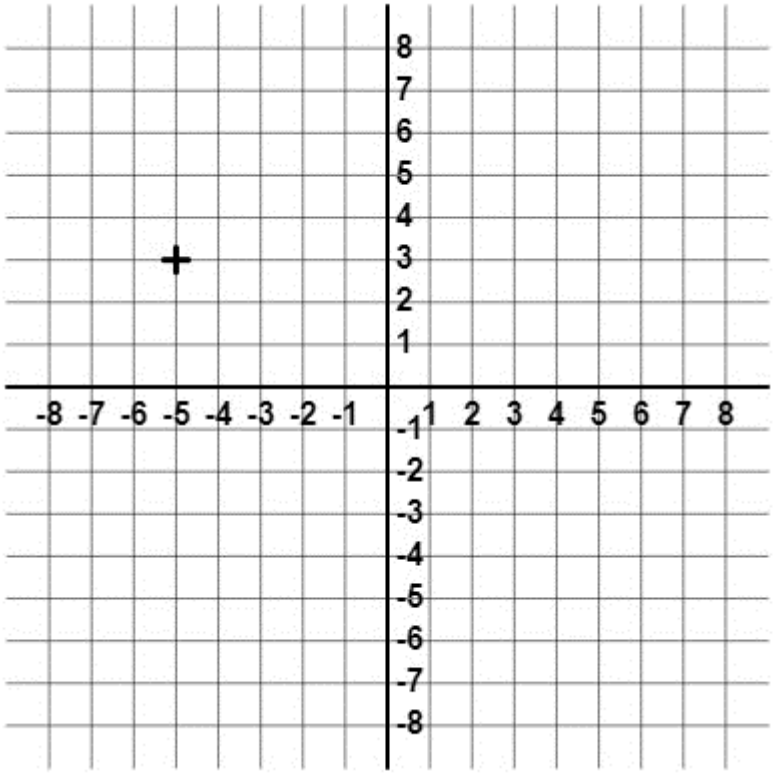
$12^2 = 12 \times 12 = 144$

$144 - 3 \times 2.1$
$= 144 - 6.3$
$= 137.7$

Answer	137.7

[1]

4. Write down the coordinates of the point labelled on the grid.

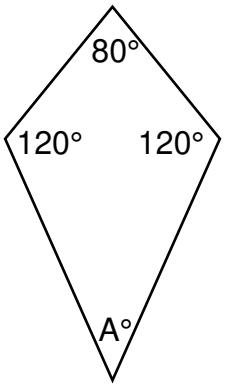


Answer	(−5 , 3)

[1]

5. Work out the value of angle A.

Not drawn to scale



360 − 120 − 120 − 80
= 40

Answer 40 °

[2]

Questions continue on the following page

6. A garden has a circular flowerbed in the centre.

The diameter of the flowerbed is 1.38 metres (m).

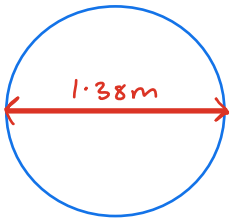
Children make fairy lights to go all around the edge of the flowerbed.

The total length of the fairy lights is 4.5 metres (m).

Are the fairy lights long enough to decorate all around the edge of the flowerbed?

Show how you decide.

Use $\pi = 3.14$



circumference = 3·14 × 1·38
= 4·3332 m
Yes 4·5m is enough

Answer	Yes

[3]

7. Charlie recently used 14 litres of paint to decorate the living room walls.

The total area painted was 91 m^2

Charlie now wants to paint the bedroom walls.

The total area to be painted is 78 m^2

Charlie has 11 litres of paint.

Does Charlie have enough paint?

Show how you decide.

Each litre covers $91 \div 14 = 6.5m^2$ of wall

For the living room he needs $78 \div 6.5 = 12$ litres

↑

No, he doesn't have enough

Answer	No

[3]

Questions continue on the following page

8. Morgan is planning a holiday and finds this information:

Greenland	Average temperature 14° Fahrenheit (°F)
Iceland	Average temperature –11° Celsius (°C)

Morgan wants to go to the warmer country.

Which country should Morgan go to?

Show how you decide.

Use: $C = \frac{5(F-32)}{9}$

Where: C = temperature in degrees Celsius
F = temperature in degree Fahrenheit

Temp in °C in Greenland is $\frac{5\times(14-32)}{9} = \frac{5\times-18}{9} = -\frac{90}{9} = -10°C$

Greenland is warmer

Answer	Greenland

[3]

9. This year, Jo's gym membership price has increased by 5%.

The new monthly price is £33.60

How much did Jo pay for an entire year's membership last year?

100 % + 5 % = 105 % = 1·05

£33.60 ÷ 1·05 = £32 per month last year

Yearly price last year = £32 × 12
= £384

Answer	£ 384

[3]

Questions continue on the following page

10. An athletics club awards points each year to its members.

In 2021, the club awarded its members a mean of 90.3 points in the year.

The grouped frequency table shows the points the club awarded its members in 2022:

Number of points awarded	Frequency
0 ≤ points < 40	7
40 ≤ points < 80	34
80 ≤ points < 120	100
120 ≤ points < 160	9
Total	**150**

midpoint	midpoint × frequency
20	20 × 7 = 140
60	60 × 34 = 2040
100	100 × 100 = 10000
140	140 × 9 = 1260
	total : 13440

The club president says:

'The mean number of points per member in 2022 has increased since 2021'

Is the president correct?

Show how you decide.

mean for 2022 = 13440 ÷ 150

= 89.6

↑

No, has not increased since 2021

Answer	No

[4]

11. Hayden is organising activities for 80 students going on a school trip.

The ratio of the number of students who can participate in swimming, rock climbing and go karting is 5 : 3 : 2

Complete the activity list for Hayden.

Activity	Number of Students
Swimming	40
Rock climbing	24
Go karting	16
Total	80

Show any workings here:

5 + 3 + 2 = 10 parts in total so 10 parts = 80 students ÷10

÷10 1 part = 8 students ÷10

5 parts = 5 × 8 = 40 students Swimming

3 parts = 3 × 8 = 24 students climbing

2 parts = 2 × 8 = 16 students go karting

[4]

Questions continue on the following page

12. Harper is a manager of a company.

Last year the company made a profit of nine hundred and seventy-five thousand and fifty pounds. £975 050

This year Harper wants to increase the profit by 3.5%. ← 100% + 3.5% = 103.5% = 1.035

Harper thinks the new profit will be more than £1 010 000

Is Harper correct?

Show how you decide.

£975 050 × 1.035 = £1009176.75

↑

No, not more than £1010 000

Answer	No

[4]

13. A delivery driver keeps a record of the number of miles per gallon (mpg) their car achieves each day.

These are the results for week 2:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
30	38	22	37	40	32	39

total 238

This is a summary of the results for week 1:

Week 1	
Mean mpg	32
Range	16

The delivery driver claims:

a) *'on average, the car achieved more miles per gallon in week 2 than in week 1'*
b) *'the miles per gallon achieved in week 2 were more consistent than in week 1.'*

Are **each** of the driver's claims correct?

Give reasons for your answers.

Show your working.

Show any workings here:

mean for week 2 = 238 ÷ 7 = 34 mpg

range for week 2 = 40 − 22 = 18 mpg

Comment regarding claim a)

Yes – mean mpg is higher in week 2

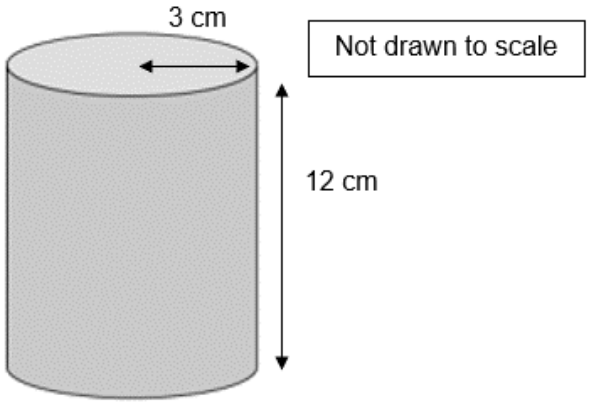
Comment regarding claim b)

No – range for week 2 is higher, so less consistent

[4]

Questions continue on the following page

14. A nursery asks Cameron to make 50 cylinder-shaped toy blocks using this design:



When the blocks are made, Cameron needs to paint them using glow-in-the-dark paint.

Each tin has enough paint to cover 1150 square centimetres (cm^2).

How many tins of paint will Cameron need to buy to paint all 50 toy blocks?

Use $\pi = 3.14$

Surface area of cylinder = (top/bottom) $3.14 \times 3 \times 3 \times 2$ + (curved face) $3.14 \times 2 \times 3 \times 12$

$= 56.52 + 226.08$

$= 282.6\ cm^2$

Total surface area for all 50 blocks is $50 \times 282.6 = 14130\ cm^2$

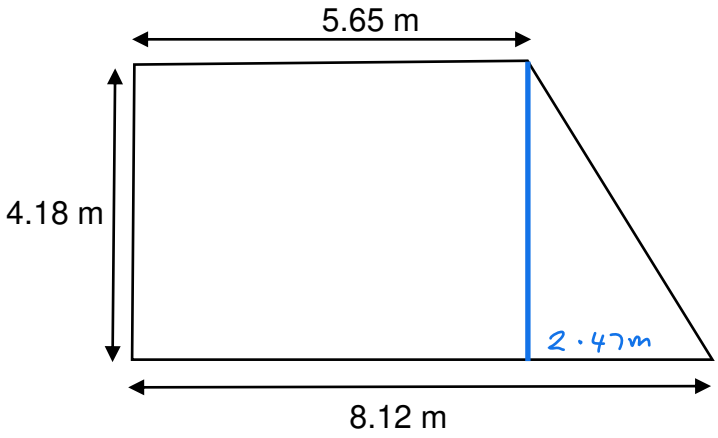
Needs $14130 \div 1150 = 12.286...$ tins of paint

So 13 whole tins

Answer	13 **tins**

[5]

15. A family wants to cover this garden with grass.



Not drawn to scale

They will buy grass as turf in square metres (m^2).

The family finds these prices online:

Cost per square metre (m^2) Must buy a whole number of square metres					
£5.00	£3.80	£4.50	£5.00	£4.25	£6.00

The family wants to pay the same amount as the modal cost.

How much will it cost to cover the entire garden in turf?

Show your working.

Area of rectangle = $4.18 \times 5.65 = 23.617\ m^2$

Area of triangle = $\frac{4.18 \times 2.47}{2} = 5.1623\ m^2$

total area = $23.617 + 5.1623 = 28.7793 m^2$ so 29 whole m^2

mode = £5 (as it appears twice)

cost = $29 \times £5 = £145$

Answer	£ 145

[6]

This is the end of the assessment.