TQUK Functional Skills Qualification in Maths at Level 2

Examination Past Paper 1

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 205 983 + 826 148

205 983
+ 826 148
1032131

| **Answer** | 1032131 |

[1]

2. Work out 2.5×3.462

3462
× 25
17310
+ 69240
86550

8·6550

| **Answer** | 8·655 |

[1]

Questions continue on the following page

1

3. Charlie buys a length of wood equal to 3.6 metres (m).

Charlie cuts off a length of 1.125 metres (m).

Work out how much wood Charlie has left.

Give your answer in metres (m).

$$
\begin{array}{r}
- \ 3.6000 \\
1.125 \\
\hline
2.475
\end{array}
$$

| **Answer** | 2.475 | **m** |

[2]

4. Work out $7^2 + 6 \times 5$

$$
\begin{aligned}
&= 49 + 6 \times 5 \\
&= 49 + 30 \\
&= 79
\end{aligned}
$$

| **Answer** | 79 |

[2]

5. Harper wants to go on holiday.

Harper finds two offers for the same holiday on different websites:

Website A	Website B
38% off	$\dfrac{3}{8}$ off

Which offer gives the bigger discount?

Show how you decide.

$38\% = 0.38$ ← bigger discount

$\dfrac{3}{8} = 0.375$

$\begin{array}{r} 0.375 \\ 8\overline{)3.3060} \end{array}$

	Answer	A

[2]

Questions continue on the following page

6. 60 people attend a dancing school.

The classes each person attends are shown below:

	Morning	**Afternoon**
Ballet	28	15
Tap	12	5

One person is chosen at random.

What is the probability that the person chosen attends the morning ballet class?

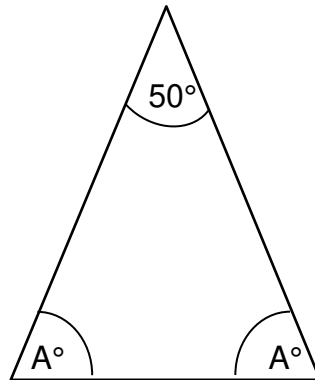Give your answer as a fraction in its simplest form.

$$\frac{28}{60} = \frac{14}{30} = \frac{7}{15}$$

Answer $\dfrac{7}{15}$

[2]

7. Work out the value of A shown in this triangle:

50°

Not drawn to scale

A°   A°

Angles in a triangle add to 180°
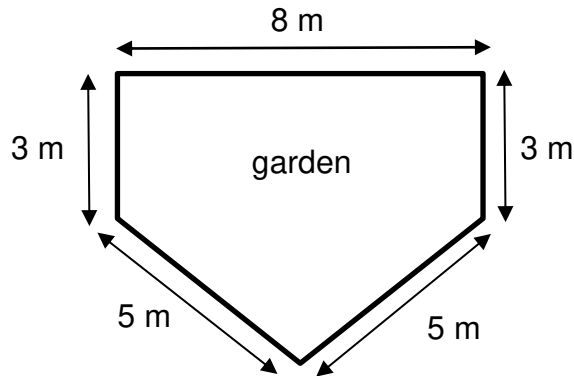
180 − 50 = 130

130 ÷ 2 = 65

Answer	65	°

[2]

Questions continue on the following page

8. Drew wants to put a fence around a garden.
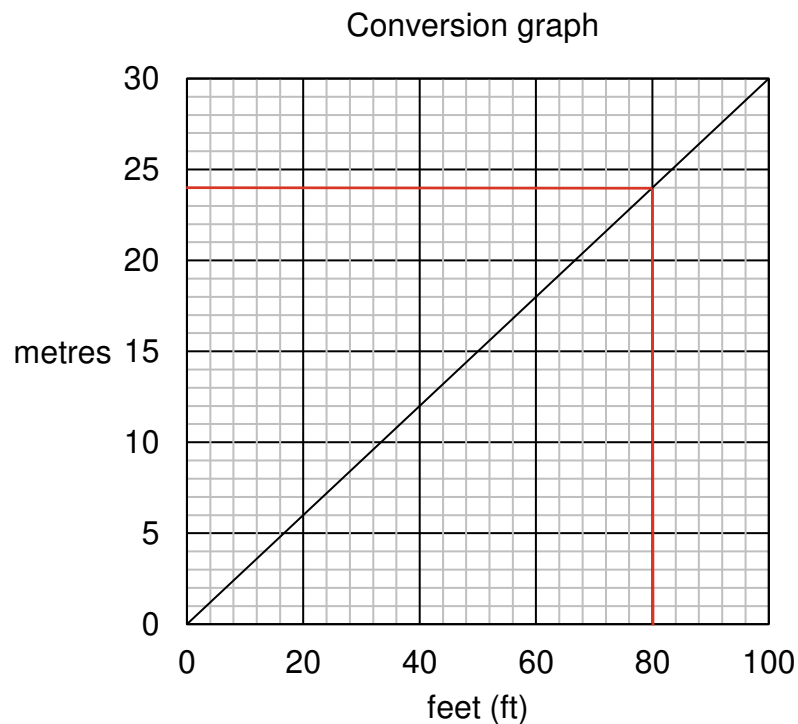
8 m

3 m   garden   3 m

Not drawn to scale

5 m   5 m

Drew knows the fence panels are sold in feet (ft).

How many feet (ft) of fence panelling does Drew need in total?

Use this conversion graph:

Conversion graph

metres 15

feet (ft)

perimeter = 8 + 3 + 5 + 3 + 5
          = 24 m

from graph 24 m = 80 feet

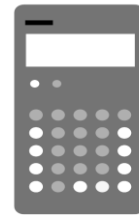**Answer** 80 **ft**

[3]

End of Section A.

Section B begins on Page 8.
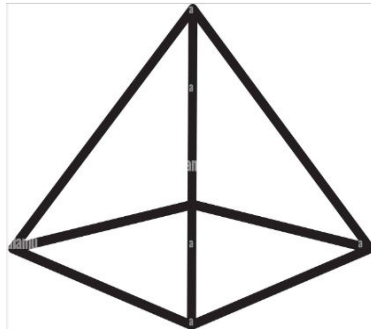
Section B: Calculator

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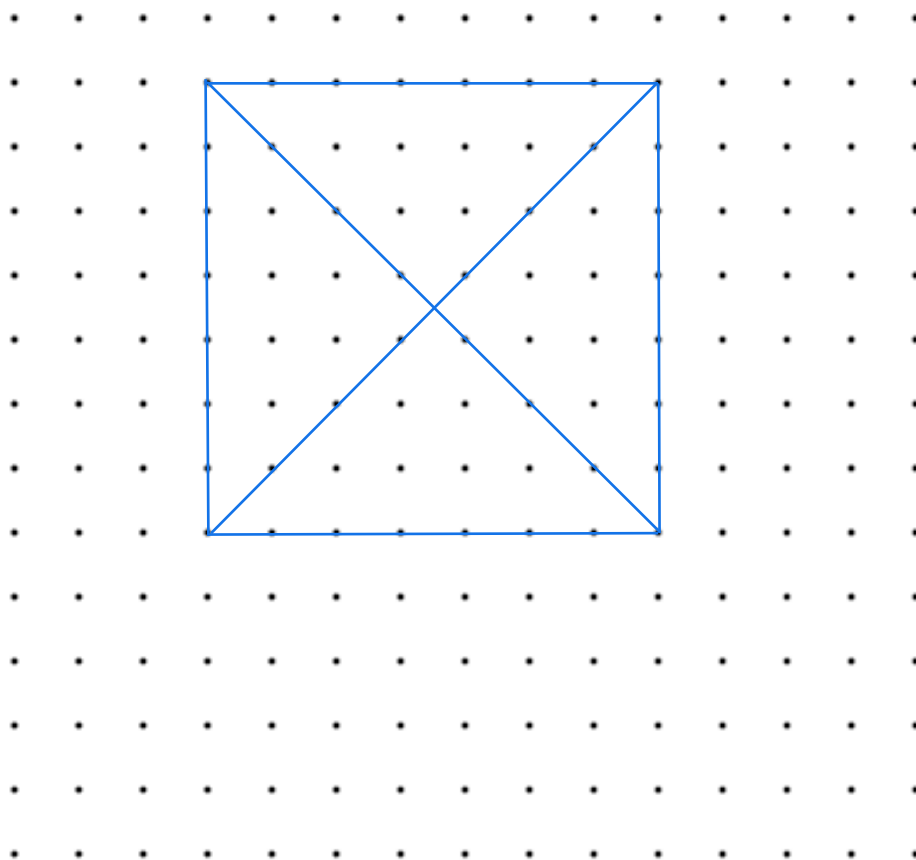You **can** use a basic calculator in this section.
You will have **90 minutes** to complete this section.

1. The diagram shows a square-based pyramid:

Draw the plan view of the square-based pyramid on this grid:

[1]

2. Write three billion in numbers.

Answer	3,000,000,000

[1]

$100\% + 12.5\%$
$= 112.5\%$
$= 1.125$

3. Lee wants to buy a new computer for £1390

If Lee uses a payment plan, the price of the computer increases by 12.5%

How much money will Lee pay in total for the computer using the payment plan?

£1390 × 1.125 = £1563.75

Answer	£ 1563.75

[2]

Questions continue on the following page

4. Put these fractions in order starting with the lowest:

$$\frac{6}{7} \qquad \frac{6}{5} \qquad \frac{8}{7} \qquad \frac{36}{35}$$

Show any working:	×5 ↓ $\frac{30}{35}$ ①	×7 ↓ $\frac{42}{35}$ ④	×5 ↓ $\frac{40}{35}$ ③	②
Answer	$\frac{6}{7}$	$\frac{36}{35}$	$\frac{8}{7}$	$\frac{6}{5}$
	Lowest	⟶		**Highest**

[2]

5. 140 people were asked if they could speak a second language.

126 people said yes.

What percentage of the total number of people said yes?

$$\frac{126}{140} \times 100 = 90\%$$

Answer	90 %

[2]

6. Harrison needs their new house to be painted within 8 days.

3 painters will take 5 days to paint the house.

Unfortunately, one painter is unavailable.

Will 2 painters be able to paint the house in time?

Show how you decide.

$$\div 3 \left(\begin{array}{l} 3 \text{ painters} \rightarrow 5 \text{ days} \\ 1 \text{ painter} \rightarrow 15 \text{ days} \end{array} \right) \times 3$$

$$\times 2 \left(2 \text{ painter} \rightarrow 7.5 \text{ days} \right) \div 2$$

Yes, under 8 days

Answer	Yes

[2]

7. Some friends are planning a hike.

The total distance of the hike is 105 kilometres (km).

The hiking route is divided into Sections A, B and C in the ratio 3 : 7 : 11

One friend thinks that Section B is 40 kilometres (km) longer than Section A.

Is this correct?

Show how you decide.

3 + 7 + 11 = 21 parts in total

So $\div 21 \left(\begin{array}{l} 21 \text{ parts} = 105 \text{ km} \\ 1 \text{ part} = 5 \text{ km} \end{array} \right) \div 21$

3 parts = 3 × 5 = 15 km
Section A

7 parts = 7 × 5 = 35 km
Section B

Section B is 35 − 15 = 20 km longer, not 40 km longer

Answer	No

[3]

Questions continue on the following page

8. Jude drives 136 kilometres (km) to visit a friend.

The drive takes 2.25 hours.

Jude thinks the average speed was less than 60.5 kilometres per hour (kph).

Is Jude correct?

Show how you decide.

Speed = distance ÷ time

= 136 ÷ 2·25

= 60·444... kph

↑

Yes, less than 60·5

Answer | Yes

[3]

9. Sam needs 2.5 pounds (lbs) of flour to do some baking.

The shop sells flour in kilogram (kg) bags.

Sam buys a 2-kilogram bag of flour.

How much flour will Sam have left over?

Use 1 lb = 0.454 kg

× 0·454

2·5 × 0·454 = 1·135 kg

Will have 2 − 1·135 = 0·865kg left

Answer | 0·865 kg

[3]

10. Kai gets paid a net amount of £1418.50 each month.

29% is deducted from Kai's gross pay before they are paid the net amount.

100% − 29%
= 71%
= 0.71

Kai wants to check the gross amount before the 29% was deducted.

Kai rounds the net amount to the nearest £10 and uses the rounded value to check the gross amount.

What answer should Kai get?

Show your working.

net amount ≈ £1420

£1420 ÷ 0.71 = £2000

Answer £ 2000

[3]

Questions continue on the following page

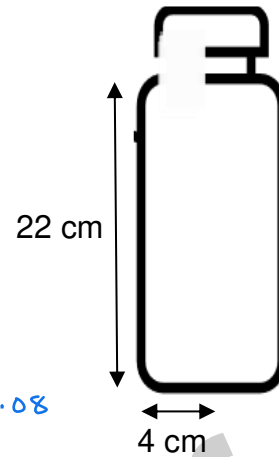**11.** Maddison uses this water bottle whilst at the gym.

The bottle is in the shape of a cylinder with internal dimensions:

- Radius = 4 cm
- Height = 22 cm

22 cm

4 cm

Maddison's personal trainer recommends a new water bottle that holds 8% more water.

100% + 8% = 108% = 1.08

What size water bottle should Maddison buy?

Use π = 3.14

Not drawn to scale

Volume of current bottle = 3.14 × 4 × 4 × 22
= 1105.28 cm³

1105.28 × 1.08 = 1193.7024 cm³ for new bottle

| Answer | 1193.7024 | cm³ |

[4]

12. Two years ago, Nicky paid £8000 into a new savings account.

The savings account paid 4% compound interest per year.

Nicky sees this car for sale: $\quad$ 100% + 4% = 104%
$$= 1 \cdot 04$$

> Car for sale
>
> £12 975

All the money in the savings account will be used as a deposit towards the car.

The balance will be paid in 20 equal monthly instalments.

How much will each monthly instalment be?

Nicky has £8000 × 1·04 × 1·04 = £8652·80

He will have £12 975 − £8652·80 = £4322.20 left to pay on the car

Each monthly instalment will be £4322·20 ÷ 20 = £216.11

Answer £ 216·11

[4]

Questions continue on the following page

13. Riley grows apples and oranges.

The weights of the apples collected on Monday are shown below:

173 grams	151 grams	182 grams	248 grams	214 grams

total 968 g

The weights of the oranges collected on Monday are summarised below:

Oranges weights	
Mean weight	188 grams
Range	112

Riley claims:
a) 'On average the weight of the apples is greater than the weight of the oranges.'
b) 'The weights of the apples are more consistent.'

Are each of Riley's claims correct?

Give reasons for your answers.

Show your working.

Show working here:

Mean for apples is 968 ÷ 5 = 193.6 g

range for apples is 248 − 151 = 97g

Reason - claim a)

Yes as the mean weight for apples is higher

Reason - claim b)

Yes as the range for apples is lower

[4]

14. Taylor is going to Finland for six months and wants to know the average monthly temperature.

Taylor finds this information:

Month	November	December	January	February	March	April
Average temperature °F	32	29	28	30	35	46

Taylor uses this formula to convert the median temperature from degrees Fahrenheit (°F) to degrees Celsius (°C):

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

Where C = temperature in Celsius (°C)
F = temperature in Fahrenheit (°F)

Taylor thinks the median monthly temperature is colder than –1°C.

Is Taylor correct?

Show how you decide.

28　29　30　↑　32　35　46

median = 31°f

Temp in °c is $\frac{5(31-32)}{9}$ = $\frac{5 \times -1}{9}$

= $\frac{-5}{9}$

= –0.555... °C
↑
no, not colder than –1°c

Answer	No

[5]

Questions continue on the following page

15. Alex has a table in the shape of a rectangle with a semicircle on each end.

0.75

1.5 m

4 m
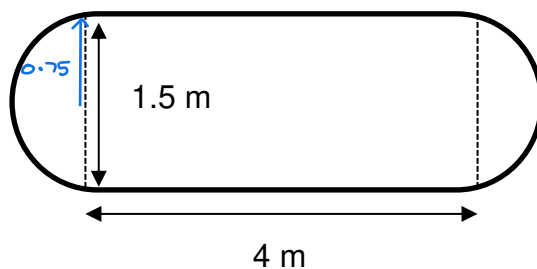
Not drawn to scale

Alex wants to cover the surface of the table in fabric and finds these prices online:

Fabric Price per square metre						
£3.75	£2.99	£3.75	£4.00	£5.25	£4.99	£5.75

Alex uses the modal price to estimate how much it will cost to cover the surface in fabric.

How much does Alex estimate the fabric will cost?

Give your answer to the nearest whole pound (£).

Use π = 3.14

rectangle   circle

Area = (4 × 1.5) + (3.14 × 0.75 × 0.75)

= 6 + 1.76625

= 7.76625 m²

Modal price is £3.75 (as it appears most often)

It will cost £3.75 × 7.76625

= £29.12

So £29 to the nearest £

Answer £ 29

[6]

This is the end of the assessment.