TQUK Functional Skills Qualification in Maths at Level 2

Examination Past Paper 8

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 need** a protractor
- 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 5.817 – 2.75

$$\begin{array}{r} 5.^{3}\cancel{8}^{1}17 \\ -\ 2.750 \\ \hline 3.067 \end{array}$$

Answer	3.067

[1]

2. Work out 4 × 3.145

$$\begin{array}{r} 3.145 \\ \times\ 4.000 \\ \hline 12.5^{2}8^{1}0 \end{array}$$

Answer	12.58

[1]

Questions continue on the following page

3. Convert 12 kilometres into miles.

Use 1.6 kilometres = 1 mile

$12 \div 1.6 = 120 \div 16 = 7.5$

$$16 \overline{)120.80} \quad 007.5$$

Answer	7.5	**miles**

[2]

4. There are 824 students at a school.

112 of them are in their final year.

One student is chosen at random.

What is the probability that this student is in their final year?

Give your answer as a fraction in its simplest form.

$$\frac{112}{824} \xrightarrow{\div 2} \frac{56}{412} \xrightarrow{\div 2} \frac{28}{206} \xrightarrow{\div 2} \frac{14}{103}$$

Answer	$\frac{14}{103}$

[2]

5. Morgan is the manager of a concert arena.

The number of tickets sold in two years is shown:

Year 1:	**Year 2**:
784 693 tickets	523 154 tickets

Morgan thinks that the total number of tickets sold in these two years is more than 1 400 000

Is Morgan correct?

Show how you decide.

$$\begin{array}{r} 784\,693 \\ +\ 523\,154 \\ \hline 1\,307\,847 \end{array}$$ = total tickets sold

Answer no, 1 307 847 sold

[2]

Questions continue on the following page

6. Work out the original cost of this television:

Television
20% off
Now only £240

£240 is 80% of original price

240 ÷ 8 = 30 so £30 is 10% of original price

30 × 10 = £300 = original price

Answer £ 300

[2]

7. Work out:

$8\frac{1}{4} + 6\frac{1}{5}$

Give your answer as a mixed number.

8 + 6 = 14

$\frac{1}{4} + \frac{1}{5} = \frac{5}{20} + \frac{4}{20} = \frac{9}{20}$

$8\frac{1}{4} + 6\frac{1}{5} = 14\frac{9}{20}$

Answer $14\frac{9}{20}$

[2]

8. Dua is going to make a gold bracelet using 50 cubic centimetres (cm^3) of liquid gold.

Dua knows the density of gold is 19.3 g/cm^3.

How many grams of gold will Dua need to make the bracelet?

Use: $\text{Density} = \frac{\text{mass}}{\text{volume}}$

mass = density x volume
= 19.3 x 50
= 965 grams

$$\begin{array}{r} 19.3 \\ \times\ 50.0 \\ \hline 965.0 \end{array}$$

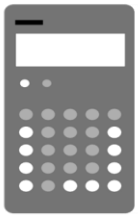
Answer	965	grams

[3]

End of Section A.

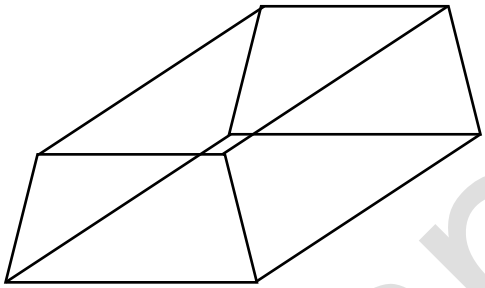
Section B begins on Page 7.

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?



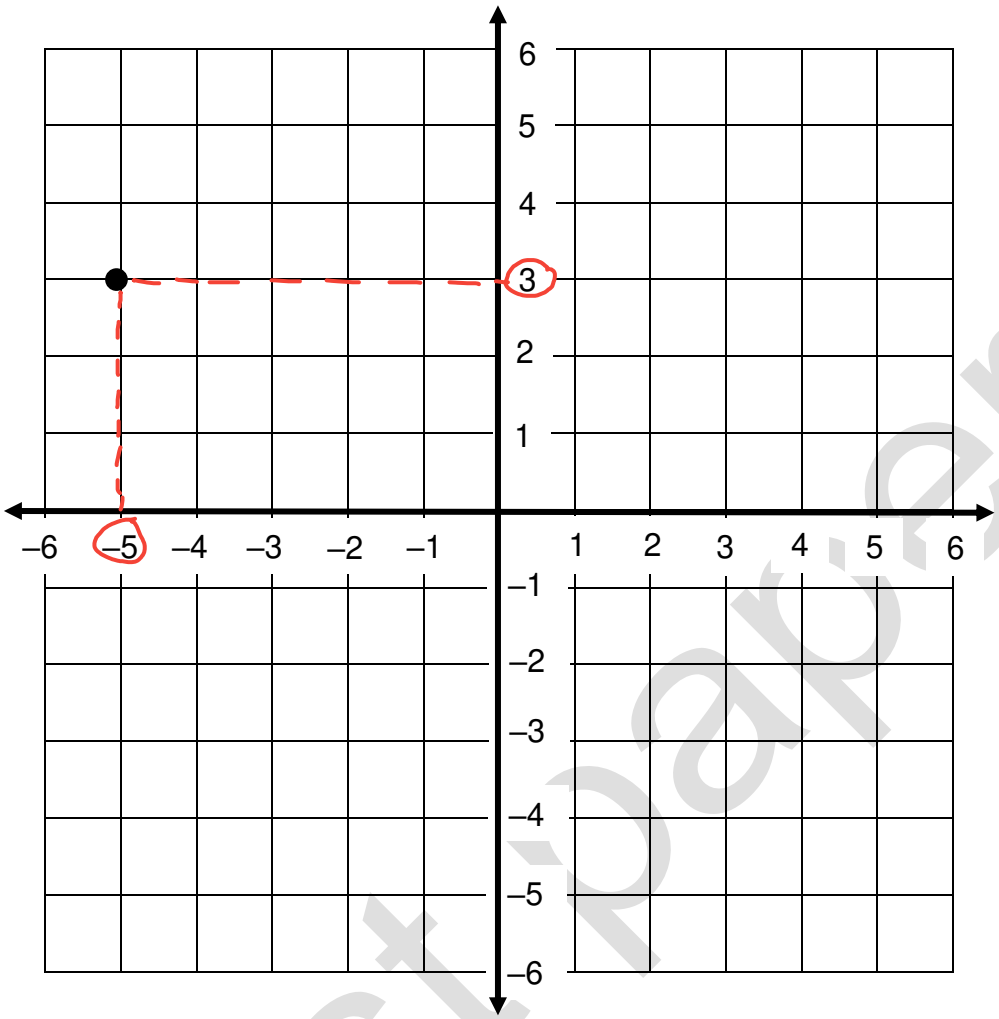
a) Pyramid	**b)** Trapezium
c) Cuboid	**d)** Prism

Answer	Prism

[1]

Questions continue on the following page

2. Write down the coordinates of the point plotted on the grid.



Answer	(-5 , 3)

[1]

3. Zola wants a new sofa.

Zola can choose either a grey or blue sofa.

Both sofas have the same original price.

Grey sofa	**Blue sofa**
$\frac{1}{9}$ off	12% off

Which sofa has the bigger discount?

Show how you decide.

$\frac{1}{9} = 0.111\ldots = 11.1\ldots\% < 12\%$

Blue sofa has bigger discount

Answer Blue

[2]

Questions continue on the following page

4. Work out:

$$\frac{4^2 + 40 \div 2}{15 - 3 \times 4}$$

Show your working.

B : X
I : $4^2 = 16$ → $\frac{16 + 40 \div 2}{15 - 3 \times 4}$
D : $40 \div 2 = 20$ → $\frac{16 + 20}{15 - 3 \times 4}$
M : $3 \times 4 = 12$ → $\frac{16 + 20}{15 - 12}$
A : $16 + 20 = 36$
S : $15 - 12 = 3$
→ $\frac{36}{3} = 12$

Answer	12

[2]

5. A local farm sells milk in glass bottles for £0.80 per pint.

The farm increases the price to £1.00 per pint.

Work out the percentage increase in price.

£1 − £0.80 = £0.20 = increase

% increase = $\frac{\text{increase}}{\text{original price}} \times 100$

= $\frac{0.2}{0.8} \times 100 = 25\%$

Answer	25	%

[2]

6. Tai needs their house painted within 10 days.

It will take 3 painters 6 days to paint the house.

Will 2 painters working at the same rate get the house painted within 10 days?

Show how you decide.

3 painters : 6 days (×3)

÷3 ↓ 1 painter : 18 days

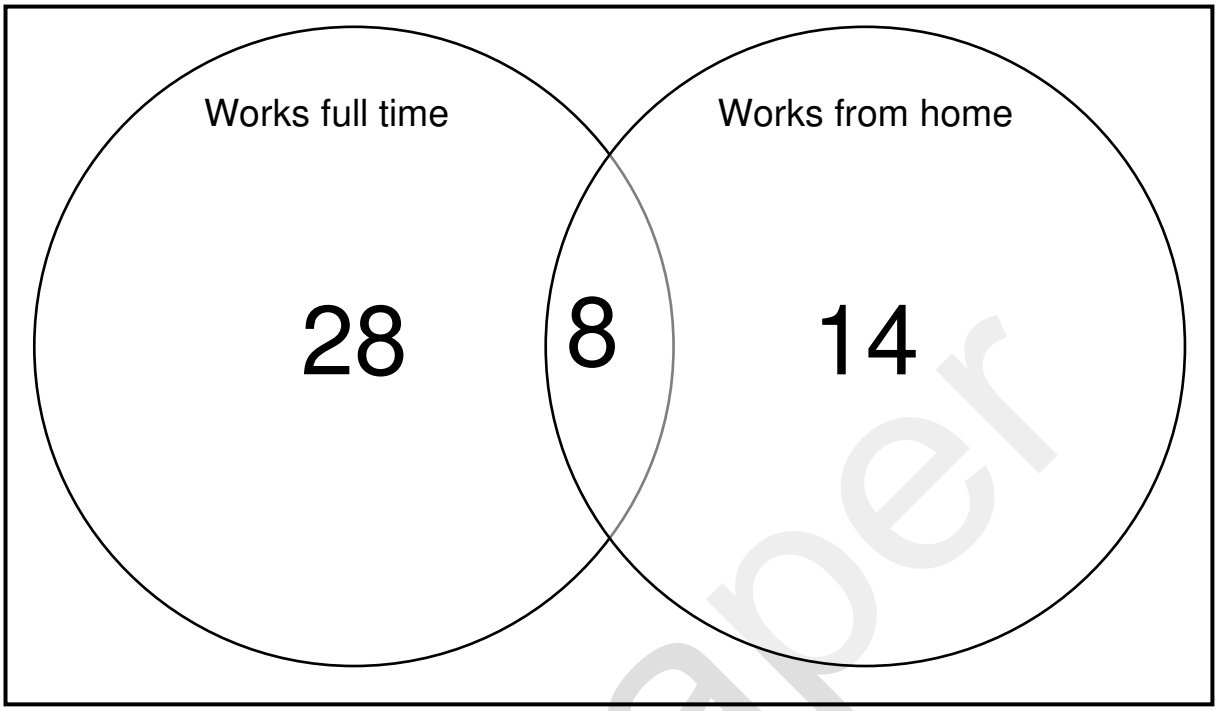
×2 ↓ 2 painters : 9 days (÷2)

Answer	yes, take 9 days

[2]

Questions continue on the following page

7. The Venn diagram shows the working patterns of a group of employees.



One of these employees is chosen at random.

What is the probability that this employee works full time?

Give your answer as a decimal **and** a percentage.

Total no. of employees = 28 + 8 + 14 = 50

no. of employees work full time = 28 + 8 = 36

$\frac{36}{50} \xrightarrow{\times 2} \frac{72}{100} = 0.72 = 72\%$

Answer	a) Decimal: 0.72	b) Percentage: 72%

[3]

8. Harper walks 15 kilometres in 200 minutes.

Harper thinks this is 4.2 kilometres per hour (kph).

Is Harper correct?

Show how you decide.

200 minutes = 3 hours 20 mins

= $3\frac{1}{3}$ hours

Speed = $\frac{15}{3\frac{1}{3}}$ = 4.5 kph

Harper is incorrect.

Answer	No, 4.5	**kph**

[3]

Questions continue on the following page

9. Charu needs to estimate the curved surface area of a hemisphere.

Charu knows:

- the radius of the hemisphere is 9 cm
- $\pi = 3.14159$

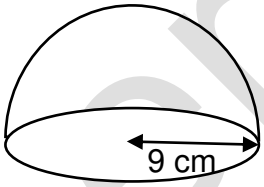
Charu rounds π to the nearest whole number to estimate the curved surface area.

What answer should Charu get?

Use:

$$A = \frac{4\pi r^2}{2}$$

Where:
A = curved surface area of sphere
r = radius of hemisphere



Not drawn to scale

Show your working.

$A = \frac{4\pi r^2}{2}$ $\pi = 3$ rounded to nearest whole number

$A = \frac{4 \times 3 \times 9^2}{2}$

$= 486 \text{ cm}^2$

Answer	486	**cm²**

[3]

10. Drew needs to order 200 paper cups for a party.

Drew needs small, medium and large cups in the ratio 14 : 4 : 2

Drew thinks there will be 108 more small cups than large cups.

Is Drew correct?

Show how you decide.

14 + 4 + 2 = 20 parts

200 ÷ 20 = 10 cups per part

14 x 10 = 140

4 x 10 = 40

2 x 10 = 20

140 : 40 : 20
(140 = small, 20 = large)

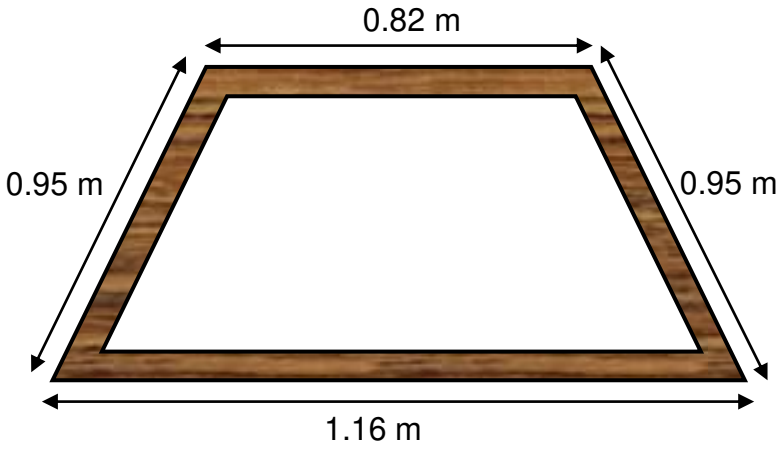
140 − 20 = 120 more small cups

Answer	No, 120 more small

[3]

Questions continue on the following page

11. Kai wants to make a wooden picture frame with the dimensions shown below:



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Kai wants to buy 14% more wood than needed to allow for any mistakes.

Kai buys 4.5 metres of wood.

Has Kai bought enough wood?

Show your working.

perimeter = 0.95 + 0.82 + 0.95 + 1.16 = 3.88 m

3.88 × 1.14 = 4.4232 m

4.4232 < 4.5

Answer	yes, 4.4232m needed

[4]

12. Billie owns a café. Deepal is the café manager.

The table shows how many customers the café had over two weeks.

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	22	38	46	30	44
Week 2	23	40	45	42	20

Deepal thinks that on average there were more customers per day on week 1.

Billie disagrees.

Show how **both** could be correct.

Show your working.

mean, week 1 $= \frac{22+38+46+30+44}{5} = 36$

mean, week 2 $= \frac{23+40+45+42+20}{5} = 34$

W1: 22, 30, 38, 44, 46 (median)

W2: 20, 23, 40, 42, 45 (median)

Give reason here:

mean of Week 1 > mean of week 2 Deepal is right

36 > 34

median of week 2 > median of week 1 Billie is right

40 > 38

[4]

Questions continue on the following page

13. Ashley wants to buy a motorbike for £9750

Ashley paid £5000 into a new savings account two years ago.

The savings account paid 4% compound interest per year.

Ashley will use all the money in the savings account as a deposit towards the motorbike.

The rest will be paid in 40 equal monthly payments.

How much will each monthly payment be?

4% multiplier = 1.04

£5000 × 1.04 × 1.04 = £5408 (deposit)
amount saved after 2 years

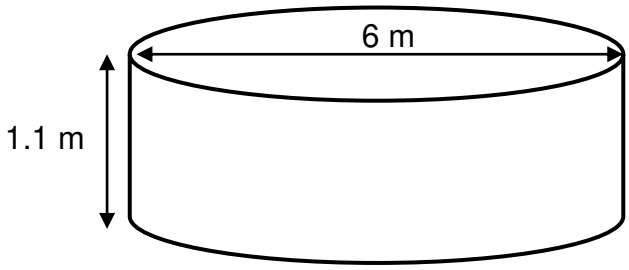
£9750 − £5408 = £4342

£4342 ÷ 40 = £108.55

Answer	£ 108.55

[4]

14. Taylor has a fishpond in the shape of a cylinder.



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Taylor uses this formula to work out how many fish can be put into the pond.

$$\textit{Maximum number of fish} = \frac{\textit{volume (in m}^3\textit{) of pond multiplied by 220}}{1000}$$

What is the maximum number of fish Taylor can put in the pond?

Use $\pi = 3.14$

volume = area of circle × 1.1

$= \pi r^2 \times 1.1$

$= 3.14 \times 3 \times 3 \times 1.1$

$= 31.086\ m^3$

$$\text{max number of fish} = \frac{31.086 \times 220}{1000}$$

$= 6.83892$

So 6 fish can fit in the pond

Answer	6 **fish**

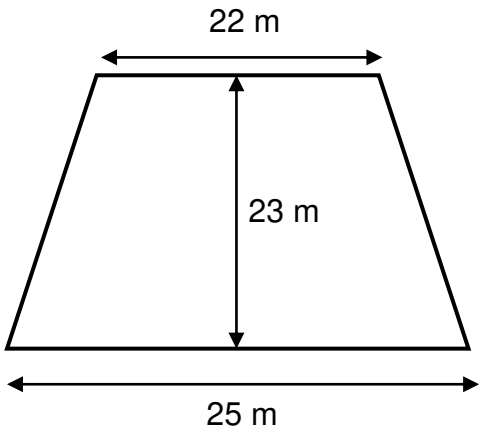
[5]

Questions continue on the following page

15. Amory has turned a barn into an event venue.

Amory wants to estimate how much money the venue can be rented out for.

The floor plan of the venue is shown below:



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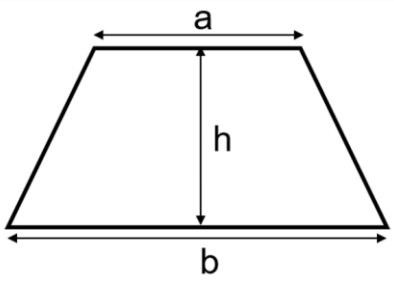
Use:

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



Amory estimates that one person will require 2.6 m^2 of floor space.

Amory finds these prices other local venues charge.

Venue	A	B	C	D	E
Price per person	£20	£35	£45	£30	£50

Amory will charge the median price.

What is the maximum amount of money Amory can expect to make?

Show your working.

Answer box is on the following page

area = $\frac{(22+25)\times 23}{2} = 540.5\ m^2$

each person needs $2.6\ m^2$

$540.5 \div 2.6 = 207.88\ldots$ fit 207 people

price : ~~£20~~, ~~£30~~, £35 (median), ~~£45~~, ~~£50~~

$207 \times 35 = £7245$

Answer	£ 7245

[6]

This is the end of the assessment.