

# TQUK Functional Skills Qualification in Maths at Level 2

## Examination Past Paper 7

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

	<b>Marks available</b>	<b>Marks awarded</b>	<b>Second marks</b>
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  $1.804 + 2.6$

$  \begin{array}{r}  1.804 \\  + 2.600 \\  \hline  4.404  \end{array}  $	
Answer	4.404

[1]

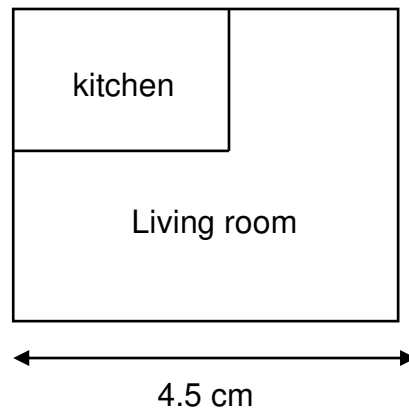
2. Work out  $5 \times 6.248$

$  \begin{array}{r}  6.248 \\  \times 5.000 \\  \hline  31.240  \end{array}  $	
Answer	31.24

[1]

Questions continue on the following page

3. This is a scale diagram of a floor plan of a house:



The scale is 1 : 200

Work out the actual length of the living room.

Give the units in your answer.

$$\begin{aligned} 4.5 \times 200 &= 4.5 \times 2 \times 100 \\ &= 900 \text{ cm} \\ &= 9 \text{ m} \end{aligned}$$

Answer	900 cm or 9 m
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[2]

4. Work out:

$$\frac{1}{4} + \frac{1}{7}$$

common denominator =  $4 \times 7 = 28$

$$\frac{1}{4} \xrightarrow{\times 7} \frac{7}{28}, \quad \frac{1}{7} \xrightarrow{\times 4} \frac{4}{28}$$

$$\frac{7}{28} + \frac{4}{28} = \frac{11}{28}$$

Answer

$$\frac{11}{28}$$

[2]

5. Charlie receives these discount coupons for the same restaurant:

**Monday**

$\frac{1}{6}$  off

**Tuesday**

16% off

Charlie wants to go to the restaurant on the day which offers the bigger discount.

On which day should Charlie go to the restaurant?

**Show how you decide.**

$$\frac{1}{6} = 0.1666... = 16.7\% > 16\%$$

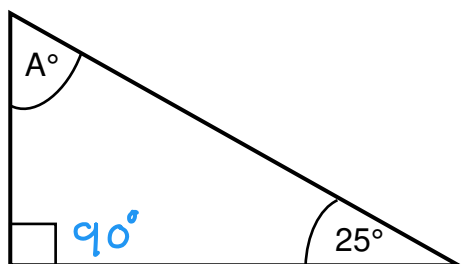
Answer

Monday, 16.7%

[2]

Questions continue on the following page

6. Work out the value of angle A.



Not drawn to scale

Angles in a triangle sum to  $180^\circ$

$$180 - 90 - 25 = 65^\circ = A$$

Answer

65

°

[2]

7. A clay pot has:

- mass = 2650 grams
- volume =  $1000 \text{ cm}^3$

Work out the density of the clay pot.

$$\begin{aligned} \text{density} &= \frac{\text{mass}}{\text{volume}} \\ &= \frac{2650}{1000} \\ &= 2.65 \text{ g/cm}^3 \end{aligned}$$

Answer

2.65 g/cm<sup>3</sup>

[2]

8. Riley wants to become a local football coach.

Riley uses this table to find out how much other local football coaches charge:

Coach	A	B	C	D	E	F	G
Charge per hour	£25	<u>£20</u>	£30	£40	£26	<u>£20</u>	£35

Riley uses this formula to work out how much to charge:

$$P = 1.1M$$

Where:

*P is the amount Riley will charge per hour in pounds*

*M is the mode of the numbers in the table*

How much will Riley charge per hour?

Mode : most common value = £20

$$P = 1.1 \times 20$$

$$= £22$$

Answer £ 22

[3]

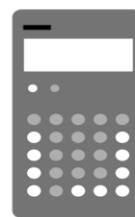
**End of Section A.**

**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. Write five million three hundred thousand in numbers.

Answer	5,300,000
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[1]

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

1 004 682

– 948 750

1 020 845

– 34 589

Show any working here:

Answer	– 948 750	– 34 589	1 004 682	1 020 845
	Lowest	—————→		Highest

[1]

Questions continue on the following page

3. Last week it took 2 gardeners 4 hours to mow a field.

This week there will be 5 gardeners available to mow a field of the same size.

The gardeners all work at the same speed.

Their manager thinks that the 5 gardeners will mow the field in less than 1.5 hours.

Is the manager correct?

**Show how you decide.**

<p>Handwritten solution:</p> <p>2 gardeners : 4 hours</p> <p><math>\div 2 \downarrow</math> 1 gardener : 8 hours <math>\downarrow \times 2</math></p> <p><math>\times 5 \downarrow</math> 5 gardeners : <math>\frac{8}{5}</math> hours = 1.6 hours <math>\downarrow \div 5</math></p>	
Answer	No, 1.6 hours

[2]

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

$2\frac{4}{9}$        $2\frac{5}{6}$        $2\frac{2}{3}$        $2\frac{13}{18}$

$\textcircled{1} 2\frac{8}{18}$        $\textcircled{4} 2\frac{15}{18}$        $\textcircled{2} 2\frac{12}{18}$

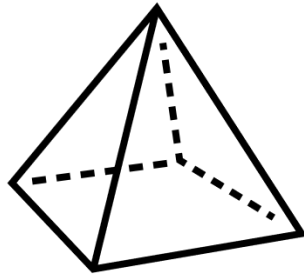
Show any working here:

<b>Answer</b>	$2\frac{5}{6}$	$2\frac{13}{18}$	$2\frac{2}{3}$	$2\frac{4}{9}$
	<b>Highest</b>			<b>Lowest</b>

[2]

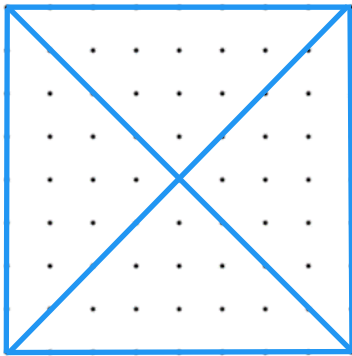
Questions continue on the following page

5. The diagram shows a square based pyramid:

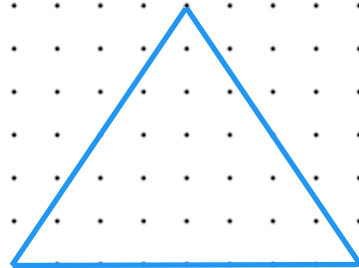


Draw the plan view and side view of the pyramid.

**Plan view**



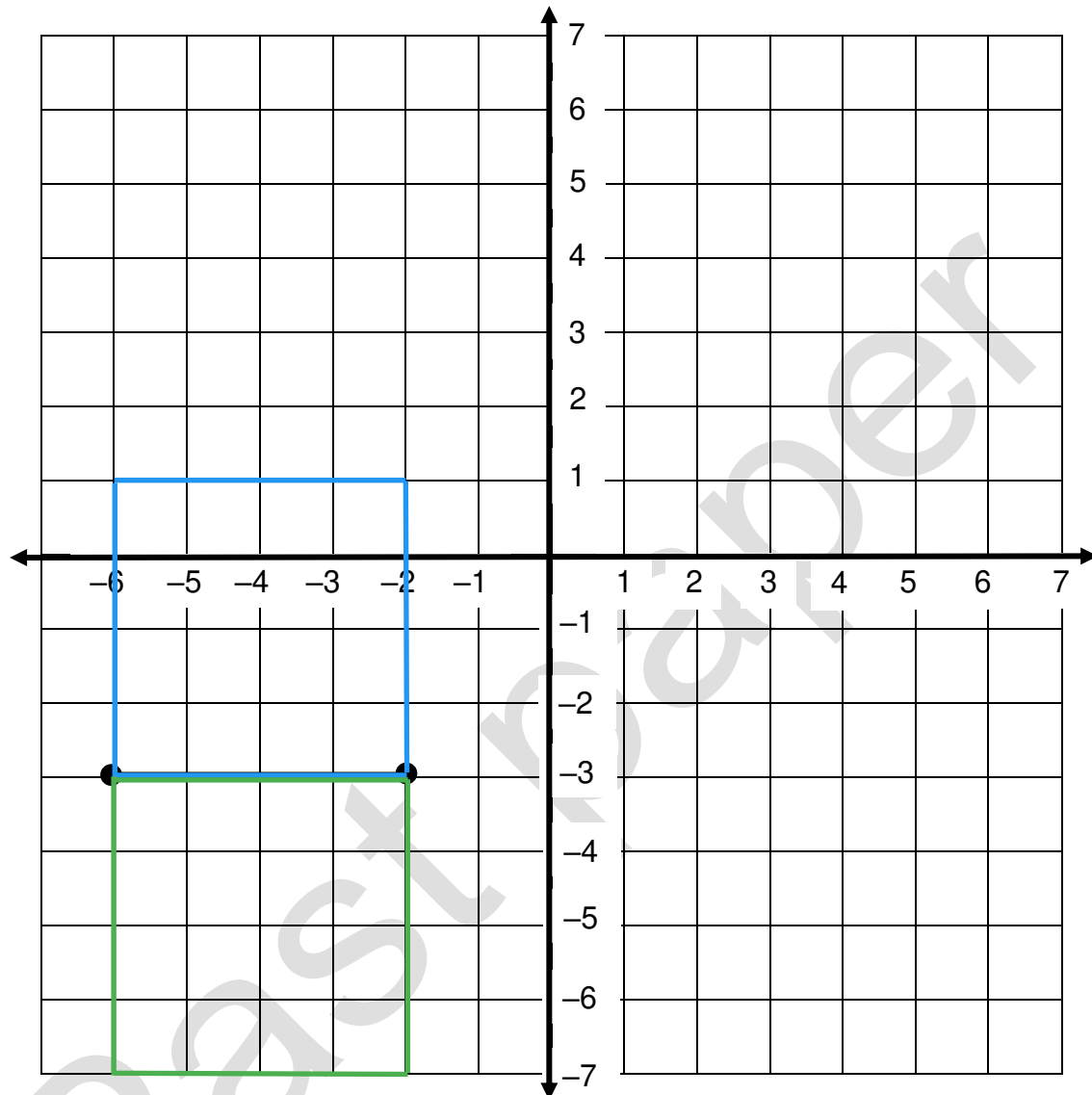
**Side view**



[2]

6. Hansa wants to put a square trampoline in a garden.

One side of the trampoline is shown on this grid:



Where could the other **two** corners of the trampoline be placed?

<b>Answer</b>	$(-6, 1)$ and $(-2, 1)$ OR $(-6, -7)$ and $(-2, -7)$
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[2]

Questions continue on the following page

7. Quinn bought a mobile phone.

The next day, Drew buys the same type of mobile phone in a sale.

Drew got a 32% discount and paid £170 for their phone.

How much more money did Quinn pay for the mobile phone?

$$\begin{aligned}1 - 0.32 &= 0.68 \\ \text{original price} \times 0.68 &= £170 \\ \text{original price} &= \frac{170}{0.68} = £250 \\ \text{Difference} &= 250 - 170 \\ &= £80\end{aligned}$$

Answer	£ 80
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[3]

8. This table shows how long Tomi spends on different tasks at work:

Serving customers	210 minutes
Working in warehouse	50 minutes
Paperwork	60 minutes
Stocking shelves	100 minutes

Tomi wants to know what fraction of time is spent doing paperwork.

Tomi works this out to be  $\frac{1}{6}$

Has Tomi worked out the correct fraction?

**Show how you decide.**

$$\text{Total time} = 210 + 50 + 60 + 100$$

$$= 420 \text{ minutes}$$

Paperwork 60 minutes

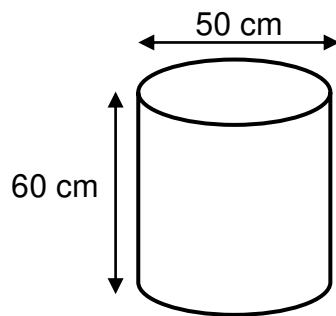
$$\frac{60}{420} = \frac{1}{7}$$

Answer No,  $\frac{1}{7}$  of his time

[3]

Questions continue on the following page

9. Bo needs to paint the outside of this cylinder including the top and bottom:



Not drawn to scale

Bo thinks the total area to be painted is less than 15 000 cm<sup>2</sup>

Is Bo correct?

**Show how you decide.**

Use  $\pi = 3.14$

$$\begin{aligned}
 \text{Circumference} &= \text{diameter} \times \pi \\
 &= 50 \times 3.14 = 157 \text{ cm} \\
 \text{Curved area} &= 157 \times 60 = 9420 \text{ cm}^2 \\
 \text{circle area} &= \pi \times r^2 \times 2 \\
 \text{(top + bottom)} &= 3.14 \times 25^2 \times 2 \\
 &= 3925 \text{ cm}^2 \\
 \text{Total surface area} &= 9420 + 3925 = 13,345 \text{ cm}^2
 \end{aligned}$$

**Answer** yes, 13 345 cm<sup>2</sup>

[3]



10. The table shows how far Alex walked each day for two weeks:

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	4 miles	2 miles	5 miles	9 miles	6 miles
Week 2	5 miles	3 miles	6 miles	7 miles	5 miles

Was Alex more consistent in week 1 or week 2?

Give a reason for your answer.

$$\text{Range of Week 1} = 9 - 2 = 7$$

$$\text{Range of Week 2} = 7 - 3 = 4$$

Alex was more consistent in week 2 as the range is lower

Answer Week 2

[3]

Questions continue on the following page

11. Jamie is planning an event for 280 people.

There will be three different ticket types available.

The ticket types are Standard, Premium and Luxury in the ratio 5 : 3 : 2

Jamie needs to know how many of each ticket type there will be.

Complete the table for Jamie.

Tickets available	
Ticket Type	Number Available
Standard	140
Premium	84
Luxury	56
Total	280

Show any workings here:

$$S : P : L \quad 5 + 3 + 2 = 10$$

$$5 : 3 : 2$$

$$280 \div 10 = 28 \text{ people per part}$$

$$S \quad 5 \times 28 = 140$$

$$P \quad 3 \times 28 = 84$$

$$L \quad 2 \times 28 = 56$$

Answer

see table

[4]

12. Damyan sells cakes in the shape of a cylinder.

The diameter of each cake is 15 centimetres (cm)

Damyan puts a ribbon around the outside of each cake.

Each ribbon needs to be 56% longer than the distance around the cake.

How long does each ribbon need to be?

Use  $\pi = 3.14$



$$\begin{aligned}\text{Circumference} &= \pi \times \text{diameter} \\ &= 3.14 \times 15 \\ &= 47.1 \text{ cm}\end{aligned}$$

$$47.1 \times 1.56 = 73.476 \text{ cm}$$

Answer	73.476	cm
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[4]

Questions continue on the following page

13. Riley wants to buy milk from a local farm.

The farm has these prices on its website:

**Glass bottles**

£1  
per pint

**Plastic bottles**

£2.30  
for a 2-litre bottle

Which type of bottle is better value for money?

Use 1 litre = 1.76 pints

Show how you decide.

Plastic bottles

$$2 \times 1.76 = 3.52 \text{ pints cost } £2.30$$

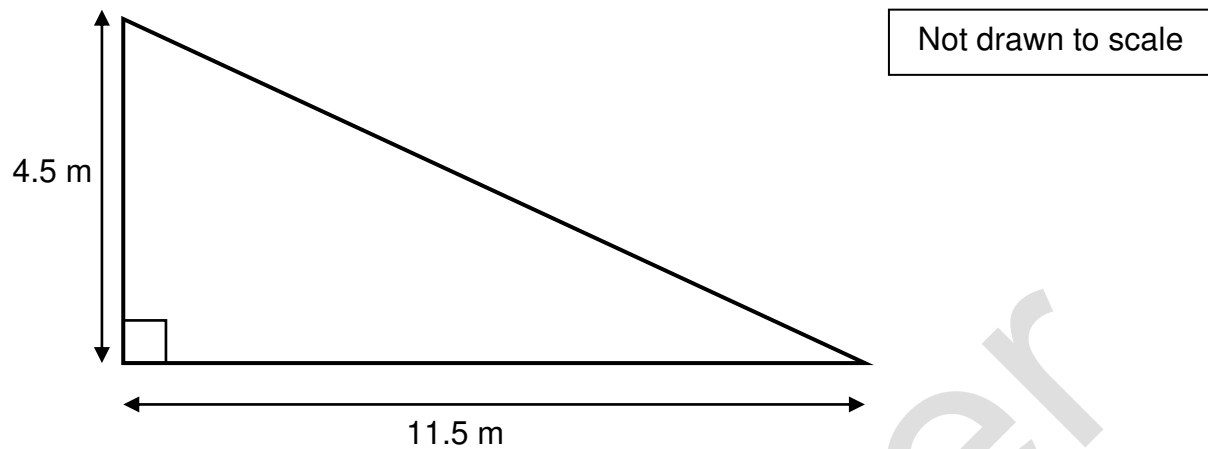
$$£2.30 \div 3.52 = £0.653... \text{ per pint}$$

**Answer**

plastic bottles  
65p per pint

[4]

14. Lei needs to paint this wall three times:



Paint is available in these colours:

Colour	White	Grey	Black	Charcoal	Cream
Number of square metres one tin will cover	14 m <sup>2</sup>	12 m <sup>2</sup>	8 m <sup>2</sup>	6 m <sup>2</sup>	13 m <sup>2</sup>

Lei chooses the colour that will cover the median number of square metres.

How many tins of paint does Lei need to paint the wall three times?

**Show your working.**

**Answer box is on the following page**

so 7 tins of grey paint

**[5]**

15. Kass owns a cleaning company.

Kass uses this table to record time spent at each cleaning job:

Time (t) in minutes	Number of cleaning jobs		$m$ midpoint	$m \times f$
$0 < t \leq 60$	11	X	30	= 330
$60 < t \leq 120$	36	X	90	= 3240
$120 < t \leq 180$	18	X	150	= 2700
$180 < t \leq 240$	5	X	210	= 1050

Kass thinks the mean amount of time per cleaning job is less than 104.75 minutes.

Is Kass correct?

**Show your working.**

**Answer box is on the following page**

$$\text{sum of (mx f) column} = 330 + 3240 + 2700 + 1050 \\ = 7320$$

$$\text{sum of (f) column} = 11 + 36 + 18 + 5 \\ = 70$$

$$\text{Estimated mean} = \frac{7320}{70} = 104.5714\dots$$

**Answer**yes, 104.5714...  
mins**[6]**



**This is the end of the assessment.**