TQUK Functional Skills Qualification in Maths at Level 2

Examination Past 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 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 9.028 – 0.17

$$\begin{array}{r} {}^{8}\cancel{9}.{}^{1}\cancel{0}{}^{9}2\,8 \\ -\;\;0.1\,7\,0 \\ \hline 8.8\,5\,8 \end{array}$$

Answer	8.858

[1]

2. Work out 24.108 ÷ 4

$$4\overline{)\,2^{2}4.1\,{}^{1}0\,{}^{2}8}\;\;06.027$$

Answer	6.027

[1]

Questions continue on the following page

3. 50 people are asked what pets they own.

The results are shown below:

	Rabbit	Cat
Dog	16	24
Fish	2	8

One person is chosen at random.

What is the probability that the person chosen has a dog and a cat?

Give your answer as a decimal.

$\frac{24}{50} = \frac{48}{100} = 0.48$

Answer	0.48

[2]

4. The mass of a sphere is 1800 grams (g).

The volume of the sphere is 450 cm^3

Work out the density of the sphere.

Density = mass ÷ volume
= 1800 ÷ 450
= 4 g/cm^3

450
900
1350
1800

Answer	4 g/cm^3

[2]

5. Jesse is the manager of an aquarium.

The table below shows how many people visited the aquarium over 3 years:

Year	Number of people
2019	568 750
2020	128 528
2021	482 935

Jesse thinks that more than 1 200 000 people visited the aquarium during the 3 years.

Is Jesse correct?

Show how you decide.

$$\begin{array}{r} 568\,750 \\ +\ 128\,528 \\ 482\,935 \\ \hline 1\,180\,213 \end{array}$$

← no, not more than 1 200 000

Answer	No

[2]

6. Work out 1.324 + 2.206 + 14.75

$$\begin{array}{r} 1.324 \\ +\ 2.206 \\ 14.750 \\ \hline 18.280 \end{array}$$

Answer	18.28

[2]

Questions continue on the following page

7. Work out:

$$\frac{3}{20} + \frac{17}{15}$$

Give your answer as an improper fraction.

$\frac{3}{20} + \frac{17}{15}$

$= \frac{9}{60} + \frac{68}{60}$

$= \frac{77}{60}$

$17 \times 4 = 68$

Answer	$\frac{77}{60}$

[2]

8. Riley's annual salary is £32 000 before tax.

Riley knows that:

- £12 570 will be tax free
- 20% tax will be deducted from the amount above £12 570

How much will the annual salary be after tax has been deducted?

Amount to be taxed = 32000 − 12570
= £19430

10% of £19430 = £1943
20% of £19430 = £1943 × 2 = £3886

After tax will have £32000 − £3886
= £28114

$1943 \times 2 = 3886$

$32000 - 3886 = 28114$

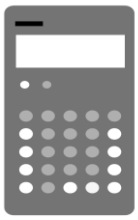
Answer	£ 28114

[3]

End of Section A.

Section B begins on Page 6.

Section B: Calculator



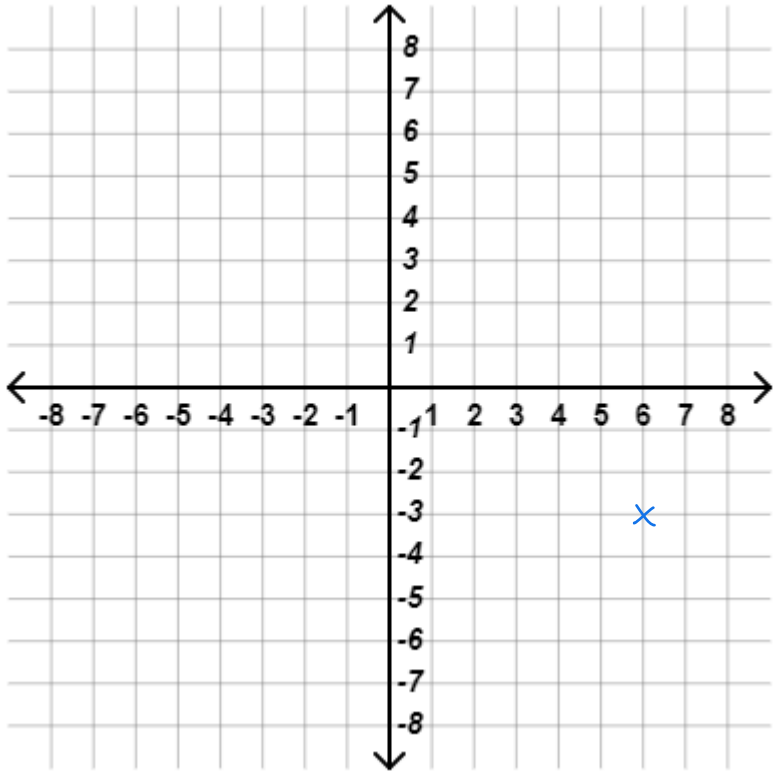
There are **45 marks** available in this section.
You **can** use a basic calculator in this section.
You will have **90 minutes** to complete this section.

1. Write 13 000 000 000 in words.

Answer	Thirteen billion

[1]

2. Plot the point (6, –3) on this coordinate grid:



[1]

3. At football training, a footballer has 56 shots at goal and scores 42 times.

The football coach thinks that the footballer scored $\frac{7}{8}$ of the shots.

Has the coach worked out the correct fraction?

Show how you decide.

÷7

$\frac{42}{56} = \frac{6}{8}$ ← not $\frac{7}{8}$

÷7

Answer	No

[2]

4. Work out:

$$\left(\frac{25+5\times3}{10^2}\right)$$

Give your answer as a decimal.

$= \frac{25 + 15}{10 \times 10}$

$= \frac{40}{100}$

$= 0.4$

Answer	0.4

[2]

Questions continue on the following page

5. 3480 people visited a museum in July.

5150 people visited the same museum in August.

Calculate the percentage change in the number of people from July to August.

$\frac{5150 - 3480}{3480} \times 100 = \frac{1670}{3480} \times 100$

$= 47.988\ldots\%$

48%

Answer	48 **%**

[2]

6. Leslie is planning a road trip.

The scale on the map is 1 : 75 000

The distance Leslie wants to travel represents 11 centimetres (cm) on the map.

Leslie calculates this to be 82.5 kilometres (km).

Is Leslie correct?

Show how you decide.

Real life distance $= 75000 \times 11$ cm

$= 825000$ cm $\div 100$

$= 8250$ m

$= 8.25$ km $\div 1000$

no, not 82.5 km

Answer	No

[2]

7. Nicky's homemade pillowcases are made using a piece of fabric two metres square.

Each time a pillowcase is made, 0.135 square metres of fabric is wasted.

Nicky wants to **estimate** what percentage of the total fabric is wasted.

Nicky rounds 0.135 to one decimal place.

Using the rounded value, what percentage should Nicky get?

Show your working.

$0.135 \approx 0.1$ to 1 decimal place

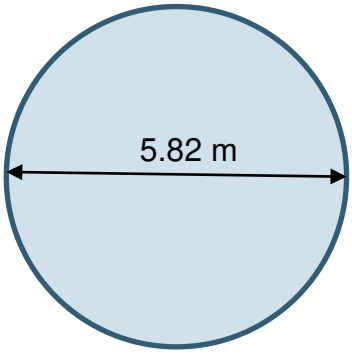
wasted fabric is $\frac{0.1}{2} \times 100 = 5\%$

Answer	5 %

[3]

Questions continue on the following page

8. Charlie wants to put a safety rope around this pond:



Not drawn to scale

Charlie thinks the total length of rope needed will be more than 18.5 metres (m).

Is Charlie correct?

Show how you decide.

Use $\pi = 3.14$

Circumference = 3·14 × 5·82
= 18·2748 m
↑
No, not more than 18·5m

Answer	No

[3]

9. Harper paid £12 500 into a new savings account 2 years ago.

The savings account paid 3% compound interest per year. ← 100% + 3% = 103% = 1.03

Harper wants to buy a new car for £18 750

Harper puts all the money in the savings account towards the new car.

How much more money is needed to pay for the car?

£12 500 × 1·03 × 1·03 = £13261.25 from savings account after 2 years

Needs £18750 − £13261.25 = £5488.75 more

Answer	£ 5488.75

[3]

Questions continue on the following page

10. Alex needs to know what time to leave home to get to a dentist appointment by 10:40 am.

Alex can cycle at an average speed of 12 miles per hour.

The dental surgery is 15 miles from Alex's house.

What is the **latest** time Alex can leave home to cycle to the appointment?

Time = Distance ÷ speed
= 15 ÷ 12
= 1·25 hrs
= 1hr 15mins

10:40 − 1hr 15mins = 9:25 am

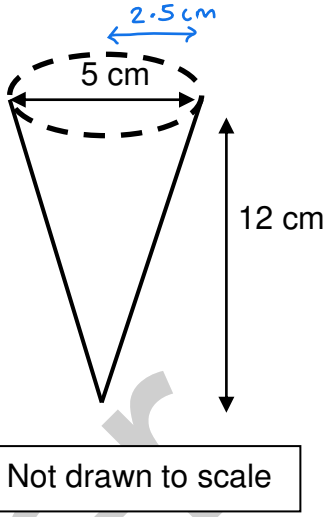
Answer	9:25 **am**

[3]

11. Taylor is going to fill a cone with strawberry and vanilla ice-creams.

Taylor will use strawberry and vanilla in the ratio 2 : 3

How much of each flavour will Taylor need?



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Use:

$$v = r^2 h$$

Where:
v = volume of cone
r = radius of cone
h = height of cone

Volume of cone = $2.5 \times 2.5 \times 12$
$= 75\text{cm}^3$

2+3 = 5 parts total so 5 parts = 75cm^3 of ice cream

1 part = 15cm^3

2 parts = 2×15
$= 30\text{cm}^3$
↑
Strawberry

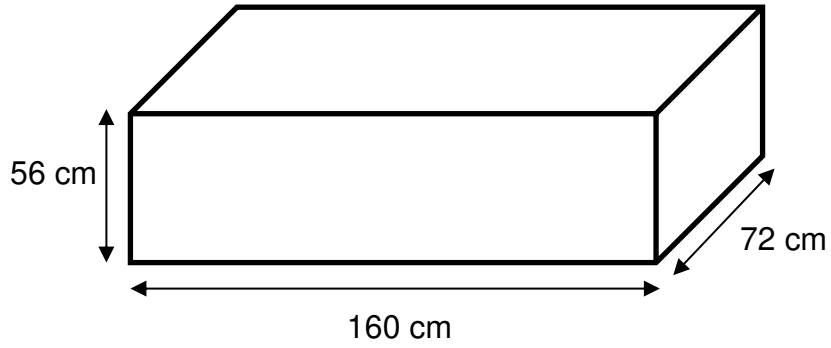
3 parts = 3×15
$= 45\text{cm}^3$
↑
Vanilla

Strawberry	30	**cm³**
Vanilla	45	**cm³**

[4]

Questions continue on the following page

12. Jamie needs to cover this cuboid chest in multi-coloured stickers for an art project:



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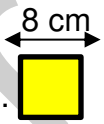


The stickers are in the shape of a square with a side length of 8 cm.

To work out how many stickers are needed, Jamie uses this formula:

$$\textit{Total number of stickers} = \frac{\textit{Total surface area of chest}}{\textit{Area of one sticker}}$$

How many stickers does Jamie need?

surface area = (56 × 160) + (56 × 160) front / back
+ (72 × 160) + (72 × 160) top / bottom
+ (56 × 72) + (56 × 72) sides

= 8960 + 8960 + 11520 + 11520 + 4032 + 4032
= 49024 cm²

area of each sticker = 8 × 8 = 64 cm²

number of stickers = 49024 ÷ 64
= 766

Answer	766

[4]

13. Drew is a gardener.

This table shows how much other local gardeners charge per hour:

Amount (A) charged per hour (£)	Number of gardeners
20 < A ≤ 30	2
30 < A ≤ 40	6
40 < A ≤ 50	8
50 < A ≤ 60	4
Total	20

midpoint	midpoint × frequency
25	25 × 2 = 50
35	35 × 6 = 210
45	45 × 8 = 360
55	55 × 4 = 220
	total: 840

Drew wants to charge an hourly rate equal to the estimated mean amount per hour.

How much should Drew charge per hour?

mean = 840 ÷ 20
= 42

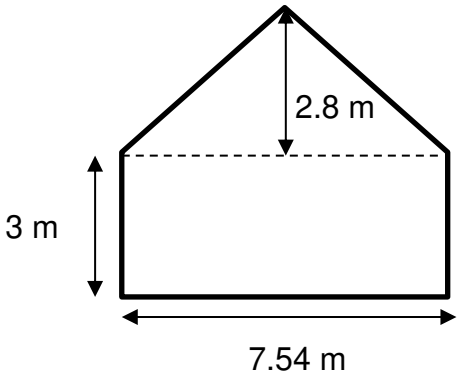
So £42 per hour

Answer	£ 42

[4]

Questions continue on the following page

14. Ashley wants to paint the wall shown:



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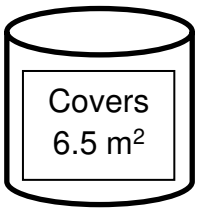
Ashley finds this tin of paint online:



How many tins of paint will Ashley need to buy to paint the wall?

Show your working.

area of rectangle = $3 \times 7.54 = 22.62\ m^2$

area of triangle = $\frac{2.8 \times 7.54}{2} = 10.556\ m^2$

total area of wall = $22.62 + 10.556 = 33.176\ m^2$

He will need $33.176 \div 6.5 = 5.104$ tins

So needs to buy 6 tins

Answer	6 **tins**

[5]

15. Quinn wants to buy some rope lights to put around a 164 foot section of a garden.

Quinn finds these rope lights online:

Rope light	A	B	C	D	E
Price per metre	£0.60	£1.99	£1.89	£0.75	£0.50

Quinn wants to buy rope lights that are 8% longer than the section of the garden.

100% + 8% = 108%
= 1.08

Quinn buys the rope lights with the median price.

How much will Quinn pay in total?

×0.305

Use 1 foot = 0.305 metres

£0.50 £0.60 £0.75 £1.89 £1.99

median = £0.75

length of garden = 164 × 0.305
= 50.02 metres

For 8% longer needs 50.02 × 1.08 = 54.0216 metres

will cost 54.0216 × £0.75 = £40.5162

so £40.52

Answer	£ 40.52

[6]

This is the end of the assessment.