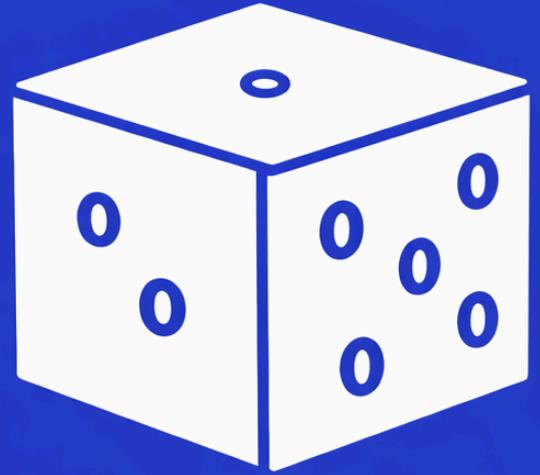


# GCSE Foundation

## Worked Solutions Paper 2c

# LUCKY MATHS



More papers



Solutions



### Instructions

Use black ink or ball-point pen.

Draw diagrams in pencil.

Write your answers in the spaces provided and show all working.

The total mark for this paper is 40



### Materials

Black pen

Pencil

Ruler

Scientific Calculator

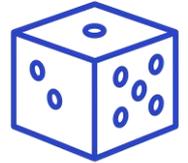
### Disclaimer:

The practice papers created by Lucky Maths are designed for revision and educational support only.

While every effort has been made to ensure accuracy and alignment with typical exam standards, these materials are not official exam papers and are not endorsed by any examination board.

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Students and parents should use these papers as supplementary practice alongside official resources.



Answer ALL questions.  
Write your answers in the spaces provided.  
You must write down all the stages in your working.

1 Work out:  $48.6 \div 0.3$

.....162.....

(Total for Question 1 is 1 mark)

---

2 Calculate:  $\sqrt{289}$

.....17.....

(Total for Question 2 is 1 mark)

---

3 Find the **value** of:  $3.2 \times 4.75$

.....15.2.....

(Total for Question 3 is 1 mark)

---

4 Evaluate:  $2.5^3$

.....15.625.....

(Total for Question 4 is 1 mark)

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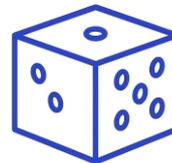
5 Simplify the ratio: 18 : 24

HCF = 6

.....3:4.....

(Total for Question 5 is 1 mark)

---



- 6 Hannah thinks of a number.  
She **divides** it by 6 and then **multiplies** it by 7.

Her answer is 56.

What **number** is she thinking of?

$$\frac{x}{6} \times 7 = 56$$
$$6 \div 7 \div 7$$

$$\frac{x}{6} = 8$$

$$6 \times 8 = 48$$

..... 48 .....

(2)

(Total for Question 6 is 2 marks)

- 7 A factory produces **4,368** bottles of juice.  
The bottles are packed **equally** into **24** crates.

(a) How many **bottles** are in **each crate**?

$$\frac{4,368}{24} = 182$$

..... 182 .....

(1)

(b) The factory makes **3 more crates** of the **same size**.

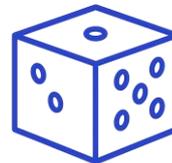
How many **extra bottles** are needed to **fill** these crates?

$$3 \times 182 = 546$$

..... 546 .....

(1)

(Total for Question 7 is 2 marks)



8 (a) Solve:  $x + 7 = 21$   
 $-7 \quad -7$   
 $x = 14$

.....  $x = 14$  .....  
(1)

(b) Solve:  $\frac{3x}{4} = 9$   
 $\times 4 \quad \times 4$

$\div 3 \left( \begin{array}{l} 3x = 36 \\ x = 12 \end{array} \right) \div 3$

.....  $x = 12$  .....  
(2)

(Total for Question 8 is 3 marks)

9 A farm has cows that produce milk in the **ratio**  
**whole milk : skimmed milk = 5 : 3.**

Last week, the farm produced **360 litres** of whole milk.

(a) How many **litres** of **skimmed** milk were produced?

$\frac{360}{5} = 72$

$3 \times 72 = 216$

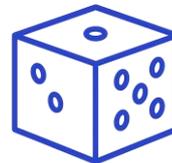
.....  $216L$  .....  
(1)

(b) What is the **total amount of milk** produced that week?

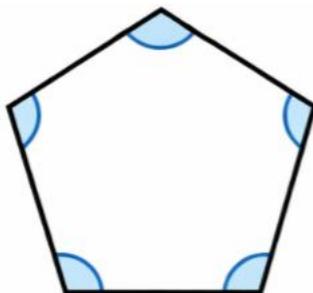
$360 + 216 = 576$

.....  $576L$  .....  
(1)

(Total for Question 9 is 2 marks)



10 A regular polygon is drawn below:



(a) What is the name of the **polygon**

Pentagon

(1)

(b) Find the size of **each angle** in the **polygon**.

$$(n-2) \times 180$$

$$3 \times 180 = 540$$

$$\frac{540}{5} = 108$$

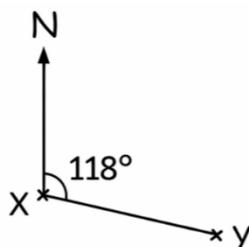
108°

(1)

(Total for Question 10 is 2 marks)

11 Albert has been asked to find the **bearing** of Y from X.

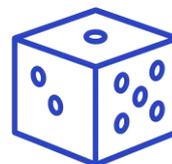
Here is Albert's working.



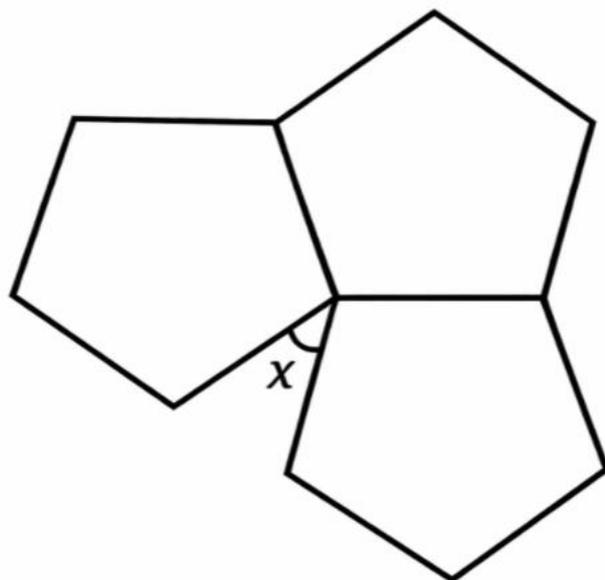
Explain below the **mistake** that Albert has made.

He has measured the angle wrong. He has measured inside the angle and not clockwise from the North line. (2)

(Total for Question 11 is 2 marks)



12 Three identical polygons are joined together.



Calculate the size of angle  $x$

$$(n-2) \times 180$$

$$5-2 = 3 \times 180 = 540$$

$$540 \div 5 = 108^\circ$$

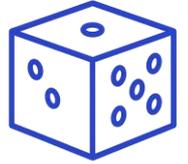
$$108 + 108 + 108 = 324$$

$$360 - 324 = 36.$$

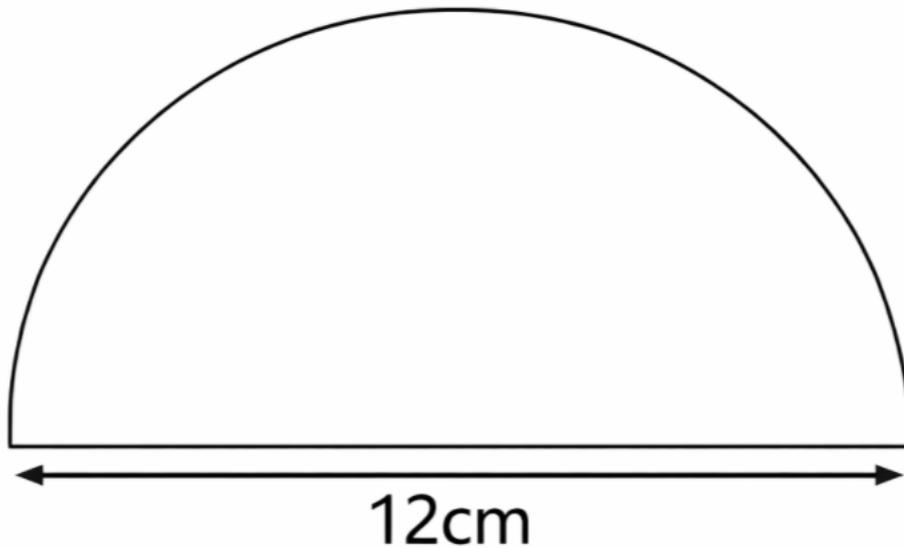
.....  
 $36^\circ$

(3)

(Total for Question 12 is 3 marks)



13 Shown below is a semi circle:



Calculate the **area** of the semi circle.

Give your answer to 2 **decimal places**.

$$12 \div 2 = 6 \text{ cm (radius)}$$

$$\pi \times 6^2 = 36\pi$$

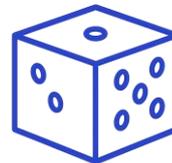
$$\frac{1}{2} \times 36\pi = 18\pi$$

$$18\pi = 56.54866$$

$$\underline{\underline{56.55 \text{ cm}^2}}$$

(3)

(Total for Question 13 is 3 marks)



14 A café sells milkshakes in two sizes.

- A **regular** milkshake contains **350 ml** of milk.
- A **large** milkshake contains **480 ml** of milk.

The café makes **12 large milkshakes** in one morning.

How much milk do they use in total?

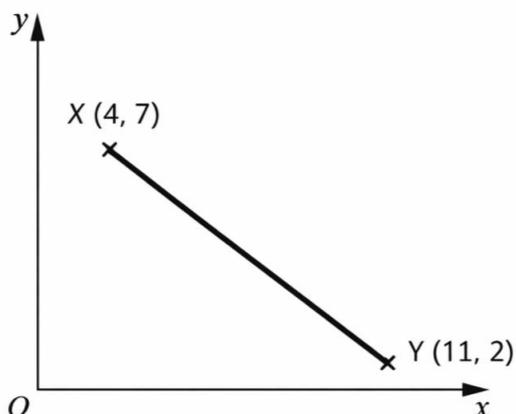
$$480 \times 12 = 5760$$

5760 ml

(1)

(Total for Question 14 is 1 marks)

15 Below is a line segment on a grid



X is the point with coordinates (4, 7).

Y is the point with coordinates (11, 2).

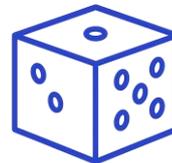
Work out the **coordinates** of the **midpoint** of the line segment XY.

$$\begin{array}{l} 4 + 11 = 15 \\ 7 + 2 = 9 \end{array} \quad \begin{array}{l} 15 \div 2 = 7.5 \\ 9 \div 2 = 4.5 \end{array}$$

(7.5, 4.5)

(3)

(Total for Question 15 is 3 marks)



16 Here are some **fractions**.

$$\frac{3}{6}$$

$$\frac{4}{9}$$

$$\frac{7}{14}$$

$$\frac{5}{12}$$

$$\frac{9}{20}$$

Circle the **fractions** which are **equivalent** to  $\frac{1}{2}$

(2)

(Total for Question 16 is 2 marks)

17 A mobile phone company advertises a **Data Saver Plan**.

- The plan includes **12 GB** of data each month.
- Sam uses **350 MB per day** browsing the internet.
- At weekends (Saturday and Sunday), Sam uses **twice as much data** each day as he does on weekdays.
- This month has **30 days**, starting on a **Monday**.

Work out how much **data** Sam uses **altogether** this month.

Give your answer in **GB**, to **2 decimal places**.

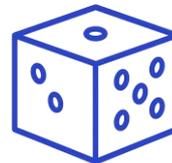
$$\begin{aligned} 4 \times 5 &= 20 \\ 20 + 2 &= 22 \text{ (weekdays)} \\ 4 \times 2 &= 8 \text{ (weekends)} \\ 22 \times 350 &= 7700 \text{ mb} \\ 2 \times 350 &= 700 \text{ mb (per weekend day)} \end{aligned}$$

$$\begin{aligned} &\rightarrow 8 \times 700 = 5600 \text{ mb} \\ 7700 + 5600 &= \\ &13300 \text{ mb} \end{aligned}$$

$$\begin{aligned} 1 \text{ GB} &= 1000 \text{ mb} \\ 13300 \div 1000 &= \\ &13.30 \text{ GB} \dots\dots\dots \text{GB} \end{aligned}$$

(3)

(Total for Question 17 is 3 marks)



18 An average **apple** weighs **128 g** to the nearest gram.

A bag contains **15 apples**.

The bag itself weighs **32 g** to the nearest gram.

What is the **maximum** possible **mass** of the bag of apples?

$$127.5 \leq W < 128.5$$

Max Value for weight = 128.5 (one apple)

$$15 \times 128.5 = 1927.5\text{g}$$

$$31.5 \leq W < 32.5$$

Max value for bag of apples = 32.5g

$$\begin{array}{l} \dots\dots\dots 1960\text{g or} \\ \dots\dots\dots 1.96\text{kg} \end{array} \quad (3)$$

$$1927.5 + 32.5 = 1960\text{g}$$

(Total for Question 18 is 3 marks)

19 On a safari tour, the ratio of **lions** : **zebras** : **giraffes** spotted was **3 : 8 : 5**.

(a) How many **lions** were seen?

..... 3 .....

(1)

(b) How many **giraffes** were seen?

..... 5 .....

(1)

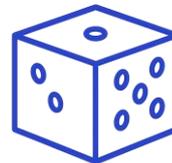
(c) What was the **total number of animals** seen on the safari?

$$3 + 8 + 5$$

..... 16 .....

(1)

(Total for Question 19 is 3 marks)



20 Last year, a total of **7,200 emergency calls** were received.

- **40%** of the calls were handled by the **police**.
- **18%** of the calls were handled by the **fire service**.
- The rest were handled by the **ambulance service**.

(a) Work out how many calls were handled by the **ambulance** service.

$$0.4 \times 7200 = 2880$$

$$0.18 \times 7200 = 1296$$

$$7200 - (2880 + 1296)$$

$$= 7200 - 4176 = 3024$$

.....**3024**.....

(3)

The following year, the number of **fire service** calls **increased** by **25%**.

(b) Work out how many **fire service** calls there were the following year.

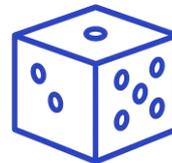
$$0.25 \times 1296 = 324$$

$$1296 + 324 = 1620$$

.....**1620**.....

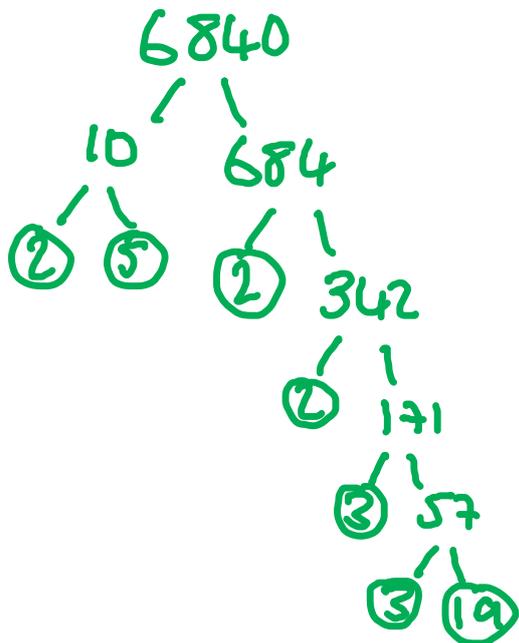
(2)

(Total for Question 20 is 5 marks)



21 Write 6840 as a product of prime factors.

Give your answer in **index form**.



$$2 \times 5 \times 2 \times 2 \times 3 \times 3 \times 19$$

$$\underline{2^3 \times 3^2 \times 5 \times 19}$$

(3)

(Total for Question 21 is 3 marks)

22 An iPad is bought for £720.

It **depreciates** in value by **18% per year**.

Work out the **value** of the iPad after **2 years**.

Give your answer to the **nearest pound**.

$$100 - 18 = 82\%$$

$$82 \div 100 = 0.82$$

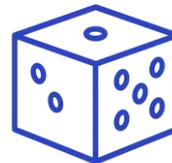
$$0.82^2 = 0.6724$$

$$720 \times 0.6724 = 484.128$$

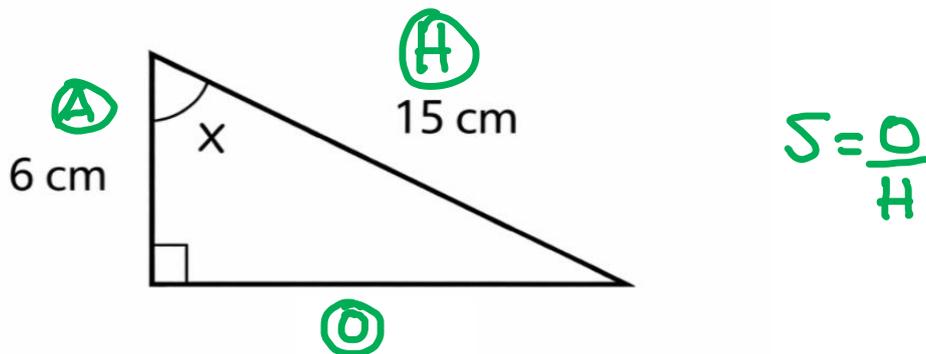
$$\underline{\underline{£484}}$$

(3)

(Total for Question 22 is 3 marks)



23 Below is a right-angled triangle.



(a) Calculate the **value** of  $x$

$$\sin x = \frac{6}{15}$$

$$x = \sin^{-1}\left(\frac{6}{15}\right)$$

.....  
 $23.6^\circ$

(3)

(Total for Question 23 is 3 marks)

24 A portable battery pack stores **20,000 mAh** of electrical charge when fully charged.

A smartphone uses **1,800 mAh** of charge every hour when streaming video.

While charging a phone, the battery pack is **85% efficient** (meaning only 85% of the stored charge is transferred to the phone).

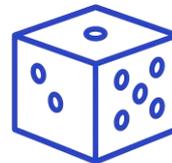
The phone is used to stream video for **6 hours**.

(a) How much charge does the phone use while streaming for **6 hours**?

$$1800 \times 6 = 10,800$$

.....  
 $10,800 \text{ mAh}$

(2)



(b) Work out how much useful charge the battery pack can provide when it is **fully charged**.

$$20,000 \times 0.85 = 17,000$$

.....17,000 MAh

(1)

(c) After the **6 hours** of streaming, how much charge **remains** in the battery pack?

$$17,000 - 10,800 = 6200$$

.....6,200 MAh

(2)

(Total for Question 24 is 5 marks)

---

25 Bev is revising for her GCSE Maths exam.

She completes **12 practice questions** on Monday.

On Tuesday, she completes **35% more questions** than she did on Monday.

(a) How many questions does Bev complete on Tuesday?

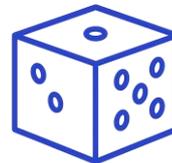
$$35\% = 0.35$$

$$12 \times 0.35 = 4.2$$

$$12 + 4.2 = 16.2$$

.....162

(2)



Bev wants to complete **at least 40 questions** across both days.

(b) Does she meet her target?

Show your working.

$$12 + 16.2 = 28.2$$

$$28.2 < 40$$

..... *No* .....

(2)

(Total for Question 25 is 4 marks)

26 Which part of a circle is **double** the **radius**?

..... *Diameter* .....

(1)

(Total for Question 26 is 1 marks)

27 Complete the table below by converting each value into a **fraction**, **decimal**, and **percentage**.

Fraction	Decimal	Percentage
$\frac{4}{5}$	<i>0.8</i>	<i>80%</i>
<i><math>\frac{11}{50}</math></i>	<i>0.22</i>	22%
<i><math>\frac{7}{20}</math></i>	0.35	<i>35%</i>

(4)

(Total for Question 27 is 4 marks)



28 Brad is growing tomato plants.

The tallest tomato plant is **62 cm** tall.

The range of the plant heights is **18 cm**.

**Find the height of the shortest tomato plant.**

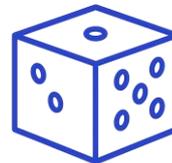
Include units in your answer.

$$62 - 18 = 44$$

44

(3)

(Total for Question 28 is 3 marks)



29 A shop sells energy drinks in **two different offers**.

**Offer A:**

A pack of **6 bottles** costs **£4.80**.  
Each bottle contains **330 ml**.

**Offer B:**

A pack of **10 bottles** costs **£7.50**.  
Each bottle contains **250 ml**.

(a) Work out the cost **per 100 ml** for Offer A.

$$6 \times 330 = 1980$$

$$\frac{4.80}{1980} = 0.002424 \text{ per ml}$$

$$0.002424 \times 100 = 0.2424$$

$$\underline{\underline{€0.24 \text{ per ml}}}$$

(2)

(b) Work out the cost **per 100 ml** for Offer B.

$$10 \times 250 = 2500 \text{ ml}$$

$$\frac{7.50}{2500} = 0.003 \text{ per ml}$$

$$0.003 \times 100 = 0.30$$

$$\underline{\underline{€0.30 \text{ per ml}}}$$

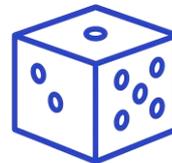
(2)

(c) Which offer gives the better value for money?  
Give a reason for your answer.

Offer A

(1)

(Total for Question 29 is 5 marks)



30 Albert is travelling around the UK to watch his favourite band on tour.

Leg 1: Manchester → Birmingham

Albert **drives** from **Manchester** to **Birmingham**, a **distance of 140 km**.

He travels at an **average speed** of **80 km/h**.

(a) Calculate the time, in **minutes**, that this journey takes.

$$T = \frac{d}{s}$$

$$\frac{140}{80} = 1.75 \text{ hours}$$

$$\underline{\underline{105 \text{ Minutes}}}$$

(2)

Leg 2: Birmingham → London

After a short break, Albert continues to London.

This part of the trip is **160 km**.

He plans to complete this journey in **2 hours 15 minutes**.

(b) Work out the **average speed**, in km/h, Albert must travel at.

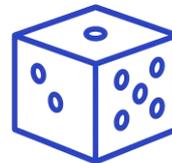
$$2 + \frac{15}{60} = 2.25 \text{ hours}$$

$$s = \frac{d}{t}$$

$$\frac{160}{2.25} = 71.11$$

$$\underline{\underline{71.1 \text{ km/h}}}$$

(2)



(c) Work out Albert's **total distance** travelled on his journey from Manchester to London via Birmingham.

$$140 + 160 = 300$$

.....300 km.....

(1)

(Total for Question 30 is 5 marks)

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TOTAL FOR PAPER IS 80 MARKS