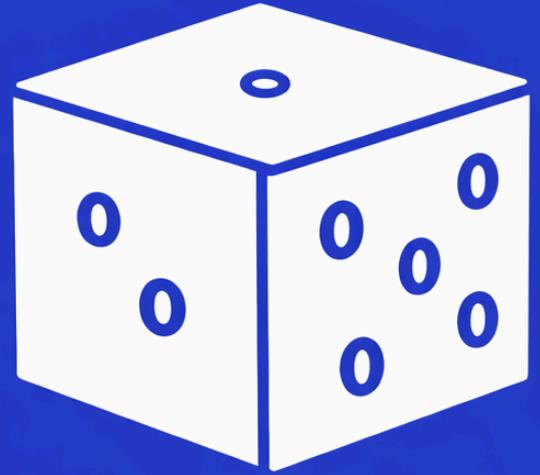
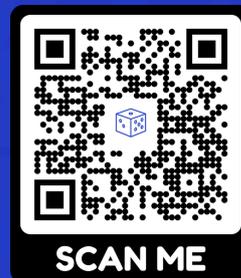


GCSE Foundation Worked Solutions 1a

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 80



Materials

Black pen

Pencil

Ruler

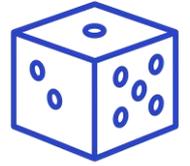
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Answer ALL questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

1 Simplify: $4q - q$

.....
 $3q$
.....

(Total for Question 1 is 1 mark)

2 Write **0.607** as a fraction in its simplest form.

.....
 $\frac{607}{1000}$
.....

(Total for Question 2 is 1 mark)

3 Convert **2500** millilitres into litres.

$1000 \text{ ml} = 1 \text{ L}$
 $2500 \div 1000$

.....
 2.5 L
.....

(Total for Question 3 is 1 mark)

4 Write down a **factor of 36** that is **greater than 6**.

$1, 2, 3, 4, 6, 9, 12, 18, 36$

.....
 $9, 12, 18 \text{ or } 36$
.....

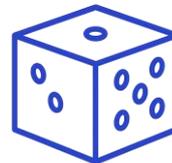
(Total for Question 4 is 1 mark)

5 A shape has **five sides**.

What is the **mathematical** name of this shape

.....
 pentagon
.....

(Total for Question 5 is 1 mark)



6 A farm records the number of **apples** and **pears** sold in **three weeks**.

≡ Week	≡ Apples	≡ Pears
1	84	45
2	76	52
3	90	40

(a) Work out the **total number** of **apples** and **pears** sold in **Week 3**

$$90 + 40$$

$$\dots\dots\dots 130 \dots\dots\dots$$

(1)

(b) The farmer says:

"I sold more than **twice as many apples** as pears altogether."

Is the farmer **correct**?

Show working.

$$84 + 76 + 90 = 250$$

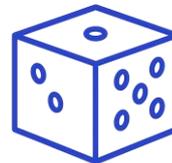
$$45 + 52 + 40 = 137$$

$$2 \times 137 = 274$$

$$\dots\dots\dots 250 < 274 \therefore \text{No} \dots\dots\dots$$

(3)

(Total for Question 6 is 4 marks)



7 A school tuck shop records how many **snacks** were sold on **one day**.

The information is shown in this **pictogram**.

☰ Snack Type	☰ Number of Snacks
1 Crisps	 16
2 Fruit	 12
3 Biscuits	 20
4 Cakes	 8

Key:  = 4 snacks

(a) How many **fruit snacks** were sold?

..... 12

(2)

(b) Show that the **total** number of snacks sold is **less than 80**.

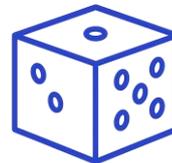
$$16 + 12 + 20 + 8 = 56$$

$$56 < 80$$

..... 56 < 80

(3)

(Total for Question 7 is 5 marks)



8 A necklace is made using **red** beads and **blue** beads in the ratio **3 : 5**.

(a) If there are **18 red beads**, how many blue beads are needed?

$$18 \div 3 = 6$$

$$\text{Blue} = 5 \times 6 = 30$$

..... 30

(1)

(b) What **fraction** of all the beads are **red**?

$$3 + 5 = 8$$

..... $\frac{3}{8}$

(1)

(Total for Question 8 is 2 marks)

9 A number **n** is given.

Brad is **n + 4** years old.

(a) Write an **expression** for Albert's age if Albert is **2 years younger than Brad**

$$(n+4) - 2$$

..... $n+2$

(2)

Vivek is **twice as old as Brad**

(b) Write an **expression** for Vivek's age in terms of **n**

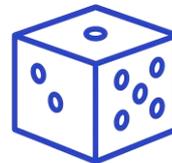
$$2(n+4)$$

$$2n+8$$

..... $2n+8$

(2)

(Total for Question 9 is 4 marks)



10 (a) Round 52,983 to the nearest 1,000

53,000
.....
(1)

(b) Estimate $113 \div 4.9$

113 - 110
4.9 - 5

$$110 \div 5 = 22$$

≈ 22
.....
(2)

(Total for Question 10 is 3 marks)

11 Part of a train **timetable** between **Town X** and **Town Z** is shown

≡ Stop	≡ Train A	≡ Train B	≡ Train C
1 X	06:55	07:20	08:00
2 Y	07:18	07:44	08:26
3 Z	07:40	08:05	08:55

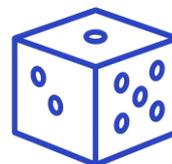
(a) Which train takes the **shortest** time from X to Y?

Ⓐ $06:55 - 07:18 = 23$ minutes

Ⓑ $07:20 - 07:44 = 24$ minutes

Ⓒ $08:00 - 08:26 = 26$ minutes

Train A
.....
(3)



(b) Reuben arrives at stop Y at 07:30.

He wants the next train to stop Z.

This train is delayed by 12 minutes.

How long must Reuben wait?

Train B - 07:44

07:44 + 12 minutes (Delay) = 07:56

07:56 - 07:30 = 26 minutes

26 minutes

(2)

(Total for Question 11 is 5 marks)

12 (a) Work out:

$$\frac{3}{5} + \frac{2}{15} = \frac{45}{75} + \frac{10}{75} = \frac{55}{75} = \frac{11}{15}$$

$\frac{11}{15}$

(2)

(b) Work out: $\frac{1}{3}$ of 45

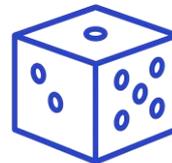
$$45 \div 3 = 15$$

$$15 \times 1 = 15$$

15

(2)

(Total for Question 12 is 4 marks)



13 A shop **reduces** all prices by **12%** during a sale.

A jacket normally costs **£48**.

(a) Work out the **amount** of the discount.

$$\frac{12}{100} = 0.12$$

$$0.12 \times 48 = 5.76$$

.....
€5.76

(1)

(b) Work out the **sale price** of the jacket

$$£48 - €5.76 = €42.24$$

.....
€42.24

(2)

(Total for Question 13 is 3 marks)

14 A field is **1500 metres** long.

On a map the scale is **1 : 25 000**.

Work out the **length** on the map in **centimetres**.

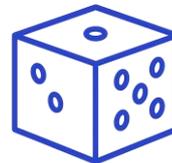
$$1500 \times 100 = 150\,000 \text{ cm}$$

$$\frac{150,000}{25,000} = 6$$

.....
6cm

(3)

(Total for Question 14 is 3 marks)



15 Work out: 4.2×19

$$4.2 \times 20 = 84$$
$$4.2 \times 1 = 4.2$$

$$84 - 4.2 = 79.8$$

$$\underline{\underline{79.8}}$$

(3)

(Total for Question 14 is 3 marks)

16 A number is **increased** by 3 and the result is then **multiplied** by 5. The final answer is 60.

(a) Write an **equation** to represent this information.

$$\underline{\underline{5(n+3)=60}}$$

(1)

(b) Solve the **equation** to find the **original** number.

$$5(n+3)=60$$
$$5n+15=60$$
$$\begin{array}{r} 5n+15=60 \\ -15 \quad -15 \\ \hline 5n=45 \end{array}$$
$$\div 5 \quad \downarrow \quad \div 5$$
$$n=9$$

$$\underline{\underline{n=9}}$$

(2)

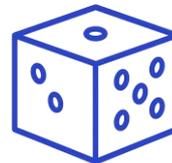
(c) Check your answer by **substituting** back into the **expression**.

$$9+3=12$$
$$12 \times 5=60$$

$$\underline{\underline{\hspace{2cm}}}$$

(1)

(Total for Question 16 is 4 marks)



17 A recipe for **6 smoothies** uses:

- 240 ml juice
- 90 g banana
- 60 g yoghurt
- 1 teaspoon honey

Jasmine wants to make **15 smoothies**. She has:

- 600 ml juice
- 230 g banana
- 160 g yoghurt
- 3 teaspoons honey

Does Jasmine have **enough** ingredients?

Show all working.

$$5f = \frac{15}{6} = 2.5$$

$$\text{Juice} - 240 \times 2.5 = 600 \text{ ml}$$

$$\text{Banana} - 90 \times 2.5 = 225 \text{ g}$$

$$\text{Yoghurt} - 60 \times 2.5 = 150 \text{ g}$$

$$\text{Honey} - 1 \times 2.5 = 2.5 \text{ tea spoons}$$

.....
Yes

(4)

(Total for Question 17 is 4 marks)



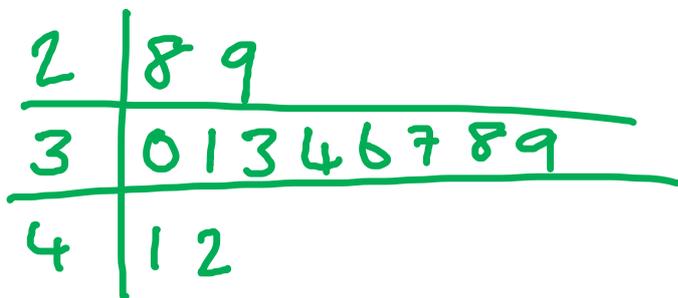
18 Here are the test scores of 12 pupils:

34, 29, 41, 37, 33, 28, 42, 39, 31, 36, 30, 38

28, 29, 30, 31, 33, 34, 36, 37, 38, 39, 41, 42

Show this information in a stem-and-leaf diagram.

Include a key.



Key = 2|8 = 28

.....
(3)

(Total for Question 18 is 3 marks)

19 Find the HCF of 40 and 64.

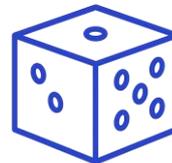
40
① × 40
② × 20
4 × 10
5 × ⑧

64
① × 64
② × 32
4 × 16
⑧ × 8

HCF = 8

(2)

(Total for Question 19 is 2 marks)



20 A bag contains only **green**, **orange**, **pink**, and **black** cubes.

The probability of selecting a green cube is **0.2**.

The probability of selecting an orange cube is **0.24**.

There are **three times as many black cubes as pink cubes**.

(a) Work out the **probability** of selecting a **pink** cube.

$$\begin{aligned}0.2 + 0.24 + p + 3p &= 1 \\0.44 + 4p &= 1 \\ \div 4 \quad (4p = 0.56) \quad \div 4 \\ \downarrow \quad p = 0.14 \quad \downarrow\end{aligned}$$

.....**0.14**.....

(3)

There are **40 green cubes**.

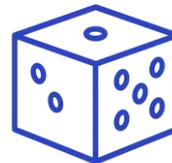
(b) Work out the **total number** of cubes in the bag

$$\frac{40}{0.2} = 200$$

.....**200**.....

(2)

(Total for Question 20 is 5 marks)



21 A pack contains **10 bottles** of water.

Each bottle contains **500 ml**.

(a) What is the total **volume** in **ml**?

$$10 \times 500$$

.....5000.....

(2)

(b) Convert your answer to **litres**.

$$1000 \text{ ml} = 1 \text{ L}$$

$$5000 \div 1000$$

.....5.....

(2)

(Total for Question 21 is 4 marks)

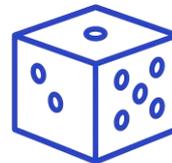
22 A factory packs **12 boxes** of pens in **18 minutes**.

(a) How long does it take to pack **1 box**?

$$\frac{18}{12} = 1.5$$

.....1.5 minutes.....

(1)



(b) How long will it take to pack **30 boxes**?

$$30 \times 1.5 = 45$$

.....45.....

(2)

(Total for Question 22 is 3 marks)

23 A drink mix is made using **water : juice = 5 : 2**

You use **350 ml of water**.

(a) How many **millilitres** of juice should you use?

$$\begin{array}{l} W:J \\ 5:2 \end{array}$$

$$\frac{350}{5} = 70$$

$$2 \times 70 = 140$$

.....140 ml.....

(3)

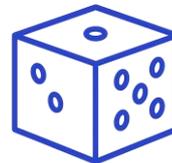
(b) What is the **total volume** of the drink?

$$350 + 140 = 490$$

.....490.....

(2)

(Total for Question 23 is 5 marks)



24 Solve: $4(3x - 2) = 40$

$$4(3x - 2) = 40$$

$$4 \times 3x = 12x$$

$$4 \times -2 = -8$$

$$12x - 8 = 40$$
$$+8 \quad +8$$

$$\div 12 \quad \downarrow \quad 12x = 48 \quad \downarrow \quad \div 12$$
$$x = 4$$

$$x = 4$$

(3)

(Total for Question 24 is 3 marks)

25 Solve the simultaneous equation:

$$\begin{array}{r} 2x + y = 11 \\ x - y = 1 \end{array} +$$

$$\div 3 \quad \downarrow \quad 3x = 12 \quad \downarrow \quad \div 3$$
$$x = 4$$

$$2x + y = 11$$

$$8 + y = 11$$

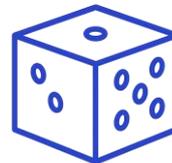
$$11 - 8 = 3$$

$$y = 3$$

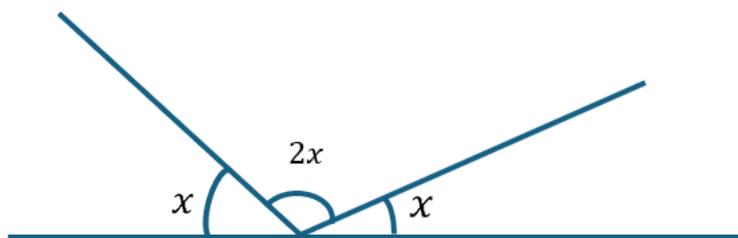
$$x = 4, y = 3$$

(3)

(Total for Question 25 is 3 marks)



26 All of the angles are measured in degrees, **calculate** the value of x



$$x + 2x + x = 4x$$

$$\begin{array}{l} \div 4 \left(4x = 180 \right) \div 4 \\ \quad \downarrow \quad \quad \quad \quad \downarrow \\ \quad x = 45 \end{array}$$

45

(3)

(Total for Question 26 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS