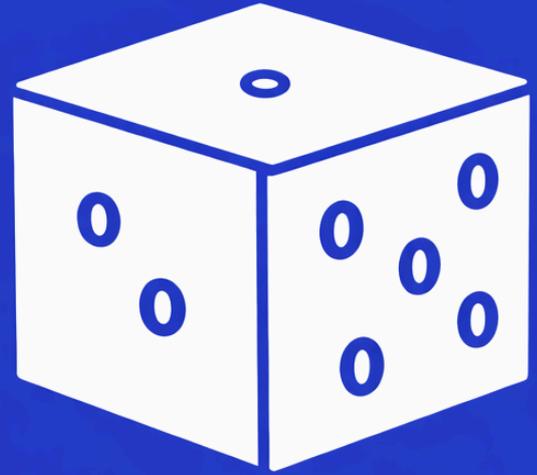


GCSE Foundation Worked Solutions

Paper 3c
Non-Calculator

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

Disclaimer:

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

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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 Solve $5x = 20$

$$\begin{array}{l} \div 5 \left(5x = 20 \right) \div 5 \\ \quad \downarrow \quad \quad \quad \downarrow \\ \quad x = 4 \end{array}$$

$$x = 4$$

(Total for Question 1 is 1 mark)

2 Write these numbers in **order from smallest to largest**:

-4, 2, -1, 0

-4, -1, 0, 2

(Total for Question 2 is 1 mark)

3 A fair **six-sided die** is rolled once.

What is the probability of getting a number **greater than 4**?

5 and 6

$$\frac{2}{6} \text{ or } \frac{1}{3}$$

(Total for Question 3 is 1 mark)

4 Simplify the ratio **18 : 24** to its **lowest terms**.

$$18 : 6 = 3$$

$$24 : 6 = 4$$

$$3 : 4$$

(Total for Question 4 is 1 mark)

5 What is the **inverse** of multiplication?

Division

(Total for Question 5 is 1 mark)



- 6 (a) A bag contains sweets in the ratio

$$\text{red : blue : green} = 7 : 3 : 5.$$

There are 45 sweets in total.

How many red sweets are in the bag?

$$7 + 3 + 5 = 15 \text{ parts}$$

$$45 \div 15 = 3$$

$$\text{Red sweets} = 7 \text{ parts}$$

$$7 \times 3 = \underline{21}.$$

21 red sweets

(2)

- (b) One sweet is taken at random from the same bag.

Work out the probability that the sweet is green.

$$7 + 3 + 5 = 15 \text{ parts}$$

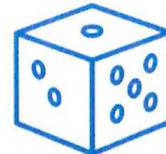
$$\text{Green} = 5$$

$$\frac{5}{15} = \frac{1}{3}$$

$\frac{1}{3}$

(3)

(Total for Question 6 is 3 marks)



7 A two-way table shows how students are grouped by **gender** and **subject**:

	Maths	Science	Total
Boys	22	14	36
Girls	23	21	<u>44</u>
Total	45	35	80

(a) Complete the **missing** value.

$$23 + 21 = 44$$

44

(1)

(b) What is the **probability** a random student is a **girl**.

$$\begin{aligned} \text{Total Students} &= 80 \\ \text{Number of girls} &= 44 \end{aligned}$$

$$\frac{44}{80} = \frac{11}{20}$$

(1)

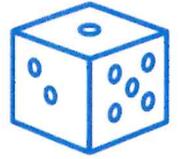
(c) What is the **probability** a student studies **Science** given they are a **boy**.

$$\begin{aligned} \text{Number of boys} &= 36 \\ \text{Boys who study Science} &= 14 \end{aligned}$$

$$\frac{14}{36} \text{ or } \frac{7}{18}$$

(2)

(Total for Question 7 is 4 marks)



8 A bag contains 3 red counters and 5 blue counters.

(a) What is the probability of choosing a red counter.

3 red

5 Blue

$$3 + 5 = 8$$

$$P(\text{red}) = \frac{3}{8}$$

(2)

(b) What is the probability of choosing two blue counters with replacement

$$P(\text{Blue}) = \frac{5}{8}$$

$$P(\text{Blue then Blue}) = \frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$$

$$\frac{25}{64}$$

(2)

(Total for Question 8 is 4 marks)

9 After a 20% increase, a jacket costs £48.

Work out the original price.

$$120 = 1.2 \times \text{original price}, \quad 1.2 \times \text{original price} = 48$$

$$\text{original price} = \frac{48}{1.2} = 40$$

$$£40$$

(3)

(Total for Question 9 is 3 marks)



- 10 Five children have the following numbers of stickers:

0, 1, 1, 2, 3, 3, 3, 3, 3, 4

Work out the **mean number of stickers**.

Show your working.

$$0 + 1 + 1 + 2 + 3 + 3 + 3 + 3 + 3 + 4 = 20$$

$$\frac{20}{9} \approx 2.22$$

$$\approx 2.22$$

(3)

(Total for Question 10 is 3 marks)

- 11 A fair **coin** is tossed and then a fair **six-sided die** is rolled.

Find the probability of getting **Heads** then an **even number**.

$$P(\text{Heads}) = \frac{1}{2}$$

$$P(\text{even number}) = \frac{3}{6} = \frac{1}{2}$$

$$\frac{1}{4}$$

$$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$$

(3)

(Total for Question 11 is 3 marks)

- 12 Share **£72** in the ratio **5 : 7**.

Work out the **larger share**.

$$5 + 7 = 12$$

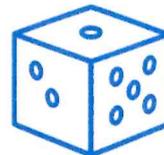
$$72 \div 12 = 6$$

$$7 \times 6 = \pounds 42$$

$$\pounds 42$$

(2)

(Total for Question 12 is 2 marks)



13 A bag contains 4 green, 2 yellow, 6 red beads.

Two beads are taken **without replacement**.

Find the probability **both are green**.

$$4 + 2 + 6 = 12$$

$$P(\text{First Green}) = \frac{4}{12} = \frac{1}{3}$$

$$\text{- Green left} = 3$$

$$\text{- Total Beads left} = 11$$

$$P(\text{2nd green} | \text{1st green}) = \frac{3}{11}$$

$$P(\text{Both green}) = \frac{4}{12} \times \frac{3}{11}$$

$$= \frac{1}{3} \times \frac{3}{11} = \frac{3}{33} = \frac{1}{11}$$

$$\frac{1}{11}$$

(3)

(Total for Question 13 is 3 marks)

14 Solve the equation and show all your working:

A number x is increased by 5 and the result is then multiplied by 3.

The final answer is 42.

Form an equation and solve for x .

$$3(x + 5) = 42$$

$$x + 5 = 14$$

$$x = 14 - 5 = 9$$

$$x = 9$$

(3)

(Total for Question 14 is 3 marks)



15 A club has members in the ratio **Sports : Music = 7 : 8**.

60% of **Sports** and **35%** of **Music** members are **juniors**.

There are **225** members total.

(a) How many **Music** members?

$$7 + 8 = 15$$

$$\text{Total Members} = 225$$

$$\text{Value of 1 part} = \frac{225}{15} = 15$$

$$8 \times 15 = 120$$

.....120.....

(2)

(b) How many **juniors** altogether?

$$\text{Sports} = 7 \times 15 = 105$$

$$\text{Music} = 8 \times 15 = 120$$

$$60\% \text{ of } 105 = 0.6 \times 105 = 63$$

$$35\% \text{ of } 120 = 0.35 \times 120 = 42$$

$$63 + 42 = 105$$

.....105 Juniors.....

(3)

(Total for Question 15 is 5 marks)

TOTAL FOR PAPER IS 40 MARKS