

## FULL MODEL ANSWERS

### Q1. NON-CALCULATOR

Complete the two-way table.

- First
- Second
- Third

	blue eyes	brown eyes	green eyes	total
boys	5	3	4	12
girls	6	7	5	18
total	11	10	9	30

Handwritten calculations and arrows:  
 -  $18 - 7 - 5 = 6$  (arrow from girls total to blue eyes)  
 -  $5 + 6 = 11$  (arrow from blue eyes to total)  
 -  $3 + 7 = 10$  (arrow from brown eyes to total)  
 -  $12 - 4 - 5 = 3$  (arrow from boys total to brown eyes)  
 -  $9 - 4 = 5$  (arrow from green eyes to girls total)  
 -  $30 - 12 = 18$  (arrow from total to girls total)

(Total for question is 3 marks)

### Q2. NON-CALCULATOR

Emma has 45 rabbits.

30 of the rabbits are male.

8 of the female rabbits have short hair.

12 of the rabbits with long hair are male.

(a) Use the information to complete the two-way table.

	Male	Female	Total
Long hair	12	7	19
Short hair	8	8	26
Total	30	15	45

Handwritten calculations and arrows:  
 -  $15 - 8 = 7$  (arrow from female total to female long hair)  
 -  $12 + 7 = 19$  (arrow from long hair to total)  
 -  $45 - 19 = 26$  (arrow from total to short hair total)  
 -  $30 - 12 = 18$  (arrow from male total to male short hair)  
 -  $45 - 30 = 15$  (arrow from total to female total)

(3)

One of Emma's rabbits is chosen at random.

(b) Write down the probability that this rabbit is a female with short hair.

$$\begin{aligned}
 p(\text{female with short hair}) &= \frac{\text{Females with short hair}}{\text{Total}} \\
 &= \frac{8}{45}
 \end{aligned}$$

$$\frac{8}{45}$$

(1)

(Total for question = 4 marks)

**Q3. NON-CALCULATOR**

There are 40 students in a class.

Each student walks to school or cycles to school or gets the bus to school.

There are 22 girls in the class.

9 of the girls walk to school.

7 of the boys cycle to school.

6 of the 10 students who get the bus to school are boys.

Find the number of these students who walk to school.

	Boys	Girls	TOTAL
Walk	5	9	14
Cycle	7		
Bus	6		10
TOTAL	18	22	40

$18 - 7 - 6$  (points to 5 in Boys Walk)  
 $40 - 22$  (points to 18 in Boys TOTAL)  
 $5 + 9$  (points to 14 in TOTAL Walk)

14

(Total for question = 4 marks)

**Q4. CALCULATOR ALLOWED**

60 people were asked if they prefer to go on holiday in Britain or in Spain or in Italy.

38 of the people were male.

11 of the 32 people who said Britain were female.

8 males said Italy.

12 people said Spain.

One of the females is chosen at random.

What is the probability that this female said Spain?

	Britain	Spain	Italy	TOTAL
Male	21	9	8	38
Female	11	3		22 ← 60-38
TOTAL	32	12		60

$32 - 11$  (arrow from 11 to 32)  
 $38 - 21 - 8$  (arrow from 21 to 9)  
 $12 - 9$  (arrow from 9 to 3)  
 $\frac{3}{22}$  (arrow from 3 to  $\frac{3}{22}$ )

(Total for question = 4 marks)

**Q5. CALCULATOR ALLOWED**

100 adults were asked how they keep fit.

Each adult goes to the gym or runs or cycles.

45 of these adults are female.

30 of the 52 adults who go to the gym are female.

35 adults run.

9 males cycle.

How many females run?

	Gym	Run	Cycle	TOTAL
Male			9	
Female	30	11	4	45
TOTAL	52	35	13	100

$45 - 30 - 4$  (arrow from 30 to 11)  
 $100 - 52 - 35$  (arrow from 35 to 11)  
 $13 - 9$  (arrow from 9 to 4)  
 ..... 11 .....

(Total for question = 3 marks)