FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

# N11: Fractions and ratio

*Reason with fractions in ratio problems*

20 marks · 25 minutes · Non-calculator

**1)** The ratio of red to blue beads is 3 : 5. Amy says $\frac{3}{5}$ of the beads are red. Explain her mistake.

.....

.....

**[Question 1: 2 marks]**

**2)** $\frac{2}{7}$ of a class are boys. Show that the ratio of boys to girls is 2 : 5

**[Question 2: 2 marks]**

**3)** £80 is shared in the ratio 3 : 5. Show that the larger share is £50.

**[Question 3: 2 marks]**

**4)** $A : B = 4 : 7$. Explain why $A$ is $\frac{4}{11}$ of the total.

.....

**[Question 4: 1 marks]**

**5)** Cats : dogs = 2 : 3 and dogs : rabbits = 4 : 5. Show that cats : dogs : rabbits = 8 : 12 : 15

**[Question 5: 3 marks]**

**6)** $\frac{1}{3}$ of a paint mix is red and the rest is yellow. Ella says the ratio of red to yellow is 1 : 3. Explain her mistake.

.....

.....

**[Question 6: 2 marks]**

**7)** Two numbers are in the ratio 3 : 4 and add up to 63. Show that the larger number is 36.

**[Question 7: 2 marks]**

**8)** $a : b = 5 : 2$. Show that $a = 2.5b$

.....

.....

**[Question 8: 2 marks]**

**9)** A class of 30 has boys and girls in the ratio 3 : 2. 4 boys leave. Show that the new ratio is 7 : 6

**[Question 9: 2 marks]**

**10)** Explain why 26 counters cannot be split into whole numbers in the ratio 2 : 3

.....

.....

**[Question 10: 2 marks]**

**End of paper – 20 marks in total**

# Answers and brief mark scheme

| Q | Answer | Method / notes |
|---|---|---|
| 1 | Explanation | There are 8 parts in total (C1); red is $\frac{3}{8}$ (B1). |
| 2 | Shown | Girls = $\frac{5}{7}$ (M1); 2 : 5 (C1). |
| 3 | Shown | $80 \div 8 = 10$ (M1); $5 \times 10 = 50$ (C1). |
| 4 | Explanation | 4 parts out of $4 + 7 = 11$ (C1). |
| 5 | Shown | Scale 2 : 3 to 8 : 12 (M1); scale 4 : 5 to 12 : 15 (M1); combine (C1). |
| 6 | 1 : 2 | Yellow is $\frac{2}{3}$ (M1); ratio 1 : 2 (C1). |
| 7 | Shown | $63 \div 7 = 9$ (M1); $4 \times 9$ (C1). |
| 8 | Shown | $\frac{a}{b} = \frac{5}{2}$ (M1); = 2.5 (C1). |
| 9 | Shown | 18 boys, 12 girls (M1); 14 : 12 = 7 : 6 (C1). |
| 10 | Explanation | Total parts 5 (M1); 26 is not a multiple of 5 (C1). |