	Ratio (Higher) Mark Scheme	
1(a)	£135	[1]
1(b)	2	[1]
1(c)	$24 : 40$	[1]
2	$\dfrac{a}{o} = \dfrac{11}{17}$	[1] Converting the ratio to a fraction
	$a = \dfrac{11}{17} o$	[1] Rearranging to make a the subject
3	$\dfrac{x+1}{3y} = \dfrac{1}{7}$; $\dfrac{2x}{y+3} = \dfrac{2}{5}$	[1] Converting ratios to fractions
	$\dfrac{3y}{7} - 1 = \dfrac{y+3}{5}$; $\dfrac{3y-7}{7} = \dfrac{y+3}{5}$	[1] Rearrange & substitute x or y into the other
	$15y - 35 = 7y + 21$; $8y = 56$; $y = 7$	[1] Find either x or y
	$\dfrac{2x}{7+3} = \dfrac{2}{5}$; $2x = \dfrac{20}{5}$; $x = 2$	[1] Find either y or x
4(a)	A ratio of $7:3$ has 10 parts, each part has 16 coins	[1] Find one part
	$7 : 3 \ = \ 112 : 48$ $7 : 5 \ = \ 112 : 80$	[1] Express ratios in terms of number of coins
	Hence 32 10p coins have been added	[1] Correct number of coins added
4(b)	$112 \times 5\text{p} = £5.60$; $48 \times 10\text{p} = £4.80$; total is £10.40	[1] Original value of coins
	$112 \times 5\text{p} = £5.60$; $80 \times 10\text{p} = £8.00$; total is £13.60	[1] Value after coins added
5(a)	$4 : 3 : 7$ makes 14 parts	[1] Summing ratio parts
	Each part is 15 ml	[1] Finding a single part
	60 ml blue; 45 ml yellow; 105 ml red	[1] Correct amount of each paint used
5(b)	Blue paint $6\text{p} \times 60 \ = \ £3.60$; Yellow paint $4\text{p} \times 45 \ = \ £1.80$; Red paint $2\text{p} \times 105 \ = \ £2.10$ Total cost $= \ £7.50$	[1] Correct cost of paint
	$5 \times £5 \ = \ £25$	[1] Total earnt from 5 paintings
	$£25 \ - £7.50 = £17.50$	[1] Correct profit calculated
6(a)	Let cats be c ; Let dogs be $\dfrac{2}{3}c$; Let birds be $\dfrac{1}{4}c$	[1] Find a common denominator
	The ratio of cats to dogs to birds is $12 : 8 : 3$, which has 23 parts	[1] Express as one ratio
	There are 27 birds	[1] Correct number of birds $\left(\dfrac{207}{23} \times 3\right)$

6(b)	$\left(\frac{207}{23} \times 8\right) = 72$ dogs	[1] Correct calculation
7	R : B : G 4 : 3 : 2	[1] Combining ratios
	So R : G = 4 : 2 = 2 : 1	[1] Correct simplified ratio
8(a)	$4x : 3x : 6x$, $4x : 3x + 6 : 6x$	[1] Forming new ratio
	$\frac{3x + 6}{13x + 6} = \frac{1}{3}$; $9x + 18 = 13x + 6$; $4x = 12$, $x = 3$	[1] Correct calculation
	Total number of sweets is now 45	[1] Finding new number of sweets
8(b)	$\frac{18}{45} = 0.4$	[1] Probability of selecting an orange sweet
9	Ratio of total employees is $3 : 5$ $3x : 5x$ Ratio of part time employees is $0.3 \times 3 : 0.2 \times 5$ $0.9\,x : x$	[1] Forming ratios (alternatively $0.3t \times \frac{3}{8} = 0.1125t$)
	Total number of part time employees is $1.9x = 38$ so , $x = \frac{38}{1.9}$, $x = 20$	[1] Finding x (alternatively $0.2t \times \frac{5}{8} = 0.125t$)
	Hence , $8 \times 20 = 160$ employees	[1] Correct number of employees (alternatively $0.2375t = 38$, t = 160)