



# Ratios (inc Scales)

## Mark Scheme 4

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Ratios (inc Scales)
Booklet	Mark Scheme 4

**Time Allowed:** 80 minutes

**Score:** /66

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

<b>1 (a) (i)</b>	<b>250</b>	<b>B1</b>	
<b>(ii)</b>	their <b>(a)(i)</b> $\div 5 \times 52$ o.e. <b>2600</b> ft www2	<b>M1</b> <b>A1 ft</b>	SC1 for $12.5 \div 5 \times 52$ , implied by 130
<b>(iii)</b>	$\frac{\text{their (a)(ii)} - 2450}{2450} \times 100$ o. <b>6.1(22.....)</b> ft www2	<b>M1</b> <b>A1ft</b>	$\frac{\text{their (a)(ii)}}{2450} \times 100 - 100, \frac{2450}{100} = \frac{150}{x}$ ft M & A only if their <b>(a)(ii)</b> > 2450
<b>(b) (i)</b>	$20 \div 5 \times 3$ <b>12</b> www2	<b>M1</b> <b>A1</b>	Accept 12, 8 or 8, 12
<b>(ii)</b>	their <b>(b)(i)</b> $\div 3$ and $(20 - \text{their (b)(i)}) \div 2.5$ <b>7 hours 12 mins</b> cao www2	<b>M1</b> <b>A1</b>	4 and 3.2 or 7.2 or 7h 20 mins seen imply <b>M1</b> Condone poor notation e.g. 7-12
<b>(iii)</b>	$(2.777-2.778)$ o.e. cao o.e. in other uni	<b>B1</b>	o.e. must have units stated e. 0.7716..m/s, 46.29 – 46.30 m/min
<b>(iv)</b>	<b>07</b> o.e. ft	<b>B1 ft</b>	ft their <b>(b)(ii)</b> + 08 55 iff finishes on same day and <b>(b)(ii)</b> has hours <b>and</b> mins
<b>(c)</b>	$20 \times 100000 \div 80$ o.e. <b>25 000 or <math>2.5 \times 10^4</math></b> www2	<b>M1</b> <b>A1</b>	25 000 seen in final ans. After M0, <b>SC1</b> for figs 25 or 0.00004 final answer <b>[13]</b>

<b>2 (a) (i)</b>	2 400	B2	SC1 for figures 24
<b>(ii)</b>	520 000	B2	SC1 for figures 52
<b>(b) (i)</b>	1 : 5 000 000 or $n = 5\,000\,000$	B2	SC1 for 5 000 000 seen in final answer or $n =$ figs 5 oe in final answer
<b>(ii)</b>	Time = 2hrs 8 mins or 128 (mins)  = 2.13(33..) (hours) oe soi  $1580 \div \text{their time}$ 738 – 742 cso	B1  B1  M1 A1	Implies previous B1 Accept $\frac{128}{60}$ soi is by correct answer www 4 (12.3 seen earns B1M1) <b>[10]</b>

3	(a)	55, 40	2	B1 B1
	(b)	$\frac{16}{25}$	1	

4	(a)	$1.33 \times \frac{5}{7}$ 950 (kg)	o.e c.a.o.	M1 A2	Implied by figures 95 in answer A1 for figs 95
	(b)	$765 \times \frac{9}{(9+8)}$ (\$ ) 405	o. c.a.	M1 A1	
	(c)	<u>their (b)</u> their (a)  (\$ ) 0.43 or (\$ ) 0.426		M1 A1 <sup>√</sup>	f.t. <u>their (b)</u> must be in dollars for A mark their (a)
	(d)(i)	$0.35 \times \frac{60}{100}$ (\$ ) 0.21	o. c.a.	M1 A1	
	(ii)	$0.35 \times \frac{100}{125}$ (\$ ) 0.28	o. c.a	M1 A1	0.26(25) is M0
				11	

5 (a)(i)	32.2	B1	
(ii)	550	B1	
(iii)	(a) $2 \times 9.2 + 1.6 \times 8$ o.e. 31.2 (b) 8 or better	M1 A1 B1✓	If 0 scored SC1 for answer 3120 Their $31.2 \div 3.6$ correctly evaluated 2 s.f. (or better) (8.6 r), accept correct fraction
(b)(i)	figs $395 \div 25$ $\times 100$ indep 15.8	M1 M1 A1	Implied by figs 158 www  www3
(ii)	figs $128 \times 25^2$ 80 000 www	M1 A1	Ignore subsequent unit conversions
(iii)	figs $250 \div 25^3$ $\times 1000$ indep 16	M1 M1 A1	Implied by figs 16  www3

[13]

6	781000	2*	M1 for $550\ 000 \times 1.42$
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7(a)(i)	$108 : 360 = 36 : n$ 120 students	o.e.	M1 A1	www2
(ii)	84		B1✓ B1(3)	✓ (their $n$ ) - 36 correct
(iii)	Grade B = 28 students ✓ their 84 Grade C = 35 students ✓ Grade D = 21 students ✓		B1✓ B1(3)	If 0 scored, allow Sc1 for (their 84) + (their 4 + 5 + 3) s.o.i. or Sc1 for 120 into 40, 50, 30.
(iv)	Angle B = $84^\circ$ Angle C = $105^\circ$ Angle D = $63^\circ$		B1 B1 B1(3)	If 0 scored, allow Sc1 for $(360 - 108) + (\text{their } 4 + 5 + 3)$ s.o.i. or Uses method 1 person $\equiv 3^\circ$ then Sc2 for 3✓ correct Sc1 for 1✓ or 2✓ correct
(v)	9:7 or $1: \frac{7}{9}$ or $\frac{9}{7}:1$		B1✓ (1)	✓ 36 : their B in lowest terms
(b)	$p = 20, q = 10, r = 15$		B4 (1)	If not scored, allow either B3 for 2 correct or B2 for 1 correct or Sc1 when $\tau > q$ or $\text{low} \equiv 5 \text{ people}$