Qn	Working	Answer	Mark	Notes
1	$12 \times 9 \times 6$		2	M1
		648		A1 cao
				Total 2 marks

Qn	Working	Answer	Mark	Notes
2 (a)		$\dfrac{5}{29}$	2	B2 for a correct simplified fraction (B1 for $\dfrac{25}{145}$ oe or for $\dfrac{29}{5}$)
(b)	$\dfrac{9}{25} \times 100$ or $\dfrac{9}{25} = \dfrac{36}{100}$		2	M1
		36		A1
(c)	$28 \div 16 \times 27$ oe eg 1.75×27 or 1.75×11		2	M1 Fully correct method
		47.25		A1 cao
				Total 6 marks

Qn		Working	Answer	Mark	Notes
3	(a)	$6 \times 8 - 4 \times 3$		2	M1
		Correct answer scores full marks (unless from obvious incorrect working)	36		A1
	(b)	$-41 = 6 \times p - 4 \times 5$ or $6p = T + 4d$ or $6p = -41 + 4 \times 5$		3	M1 for correct substitution into the correct formula or a correct rearrangement for $6p$
		$6p = -41 + 20$ or $6p = -21$ $-6p = 41 - 20$ or $-6p = 21$ $p = \dfrac{-41+20}{6}$ or $p = \dfrac{41-20}{-6}$			M1
		Correct answer scores full marks (unless from obvious incorrect working)	$-\dfrac{7}{2}$		A1 Oe If no marks awarded SCB1 for -266
	(c)	$4x - 12$ or $x - 3 = \dfrac{7x}{4} + \dfrac{15}{4}$ oe		3	M1 for a correct expansion of bracket **or** division of all terms in a correct equation by 4
		$4x - 7x = 15 + 12$ or $-12 - 15 = 7x - 4x$ or $-3x = 27$ or $-27 = 3x$			M1 for a correct rearrangement within a correct equation with x terms on one side and the numbers on the other side
		Working required	-9		A1 dep on M1 (SCB1 for an answer of $x = -6$ with working shown from $4x - 3 = 7x + 15$)
					Total 8 marks

Qn	Working	Answer	Mark	Notes
4	(360 – 122 – 122) ÷ 2 or 180 – 122		3	M1
		58		A1 for 58°
		58 and correct reason		B1 dep on M1for a reason for their method used **allied** or **co-interior** angles add up to **180°** or **corresponding** angles are **equal** (angles on a **straight line** add up to **180°**) or **opposite angles** in a **rhombus** are **equal** or angles of a **rhombus/quadrilateral** add up to **360°**
				Total 3 marks

Qn	Working	Answer	Mark	Notes
5 (a)	$54 \div 9 \times 4$ oe or $\dfrac{4}{9} \times 54$ oe		2	M1 Allow $0.44(44\ldots) \times 54$ or $\dfrac{24}{54}$
	Correct answer scores full marks (unless from obvious incorrect working	24		A1
(b)	$\dfrac{"24"+ n}{54+ n} = \dfrac{1}{2}$ or $\dfrac{30}{60}$ or $54 - "24"$ ($= 30$) and $"30" - "24"$ or $2 \times "30" - 54$		2	M1 ft if "24" < 27 or $\dfrac{6}{60}$
	Correct answer scores full marks (unless from obvious incorrect working)	6		A1
				Total 4 marks

Qn	Working	Answer	Mark	Notes
6	12×2.45 ($= 29.4$) **or** $21 \div 12$ ($= 1.75$)		3	M1
	$\dfrac{'29.4'-21}{21} \times 100$ oe **or** $\dfrac{2.45 - '1.75'}{'1.75'} \times 100$ oe **or** $(\dfrac{'29.4'-21}{12}) \div '1.75' \times 100$ oe **or** $(\dfrac{2.45}{'1.75'} \times 100) - 100$ oe			M1 or an answer of 140(%)
	Correct answer scores full marks (unless from obvious incorrect working)	40		A1
				Total 3 marks

Qn	Working	Answer	Mark	Notes	
7	$\dfrac{4.5}{100} \times 25\,000\ (=1125)$ **or** $\dfrac{104.5}{100} \times 25\,000\,(=26\,125)$ **or** $1150 \times 3\ (=3450)$ **or** $25\,000 + 1150 \times 3\ (=28\,450)$ (allow $\dfrac{3 \times 4.5}{100} \times 25\,000\,(=3375)$ for this mark)		4	M1 finding 4.5% or 104.5% of 25 000 (allow for $3 \times 0.045 \times 25\,000$ oe) **or** the total interest for T bank **or** the total amount gained for T bank	M2 for $1.045^3 \times 25\,000\,(=28\,529.(15313))$
	$\dfrac{4.5}{100} \times (25\,000 + \text{‘}1125\text{’})\ (= 1175.625 \text{ or } 1175 \text{ or } 1176)$ **and** $\dfrac{4.5}{100} \times (25\,000 + \text{‘}1125\text{’} + \text{‘}1175.625\text{’})\ (= 1228.529)$ **or** $\dfrac{104.5}{100} \times 26125\,(= 27\,300.625)$ **and** $\dfrac{104.5}{100} \times 27\,300.625\,(= 28529.15....)$			M1 completing the interest for C bank **or** completing the total amount for C bank	
	‘1125’ + ‘1176’ + ‘1229’ (= 3530) **or** ‘28 529’ – 25 000 (=3529) **and** 3 × 1150 (= 3450) **or** ‘28 529’ **and** 25 000 + ‘3450’ (= 28 450)			M1 for total interest for C bank and total interest for T bank **or** total amount for C bank and total amount for T bank	
	Working required	79 or 80		A1 dep on M2 Allow 79 - 80	
					Total 4 marks

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Qn	Working	Answer	Mark	Notes	
8	40, 80, 120, 160, 200, 240 48, 96, 144, 192, 240 **or** 40, 1h 20, 2h, 2h 40, 3h 20, 4h 48, 1h 36, 2h 24, 3h 12, 4h **or** 6 40, 7 20, 8 00, 8 40, 9 20, 10 00 6 48, 7 36, 8 24, 9 12, 10 00 **or** [(40 =) 8 × 5 and (48 =) 8 × 6 oe eg 40 = 2×2×2×5 and 48 =2×2×2×2×3 (could be numbers on ends of factor trees]		3	M1	for listing multiples of 40 and 48 with at least 3 numbers in each list. (Multiples could be given in minutes or in hours and minutes) Or for listing times after 6 am for both trains, with at least 2 times in each list (allow one ft error)[mark until you have seen 2 correct times with only one ft error]
	(LCM =) 8 × 30 (= 240) or 4 or 10 (am) shown in lists but not given as answer			A1	for 240 (minutes) or 4 (hours)
	Correct answer scores full marks (unless from obvious incorrect working)	10 00 (am)		A1	oe
					Total 3 marks

Qn		Working	Answer	Mark	Notes

9	(a)		$\dfrac{31}{70}$	1	B1 31/70
					       Accept 0.44(28571…..) or
					       44.(2…)%

	(b)	$4 \times 6 + 12 \times 14 + 20 \times 19 + 28 \times 25 + 36 \times 6$ (= 1488) **or** $24 + 168 + 380 + 700 + 216$ (= 1488)		4	M2 for at least **4** correct products added (need not be evaluated) If not M2 then award: M1 for consistent use of value within interval (including end points) for at least **4** products which must be added or correct midpoints used for at least **4** products and not added
		$\dfrac{4 \times 6 + 12 \times 14 + 20 \times 19 + 28 \times 25 + 36 \times 6}{70}$ oe eg '1488' ÷ '70'			M1 dep on at least M1 Allow division by their Σf provided addition or total under column seen
		Correct answer scores full marks (unless from obvious incorrect working)	21.26		A1 awrt 21.26 accept 21.3
					Total 5 marks

Qn	Working	Answer	Mark	Notes
10	$80 = \dfrac{60}{\text{time}}$		3	M1 for substituting correctly into the speed formula
	$(\text{time} =)\dfrac{60}{80}$ or $\dfrac{3}{4}$ or 0.75 or 45			M1 for correctly rearranging the speed formula for time
	Correct answer scores full marks (unless from obvious incorrect working)	2 20 (pm)		A1 Accept 14 20
				Total 3 marks

Qn	Working	Answer	Mark	Notes
11 (a)	$\dfrac{45}{20}$ **or** $\dfrac{20}{45}$ **or** $\dfrac{36}{20}$ **or** $\dfrac{20}{36}$ oe 2.25 **or** 0.44(44…) **or** 1.8 **or** 0.55(55…)		2	M1 for a correct scale factor, accept ratio notation eg 45 : 20
	Correct answer scores full marks (unless from obvious incorrect working)	81		A1
(b)	54 ÷ 2.25 **or** 54 × 0.44(44…) oe **or** $36 \times \dfrac{54}{'81'}$		2	M1 can ft if M1 scored in (a)
	Correct answer scores full marks (unless from obvious incorrect working)	24		A1
				Total 4 marks

Qn	Working	Answer	Mark	Notes
12	$0.22x = 5.48$ oe or (1% =) $5.48 \div 22$ (= 0.24909…) or $100 \div 22$ (= 4.54…)			M1
	(x =) $5.48 \div 0.22$ oe or (100% =) $5.48 \div 22 \times 100$ or "0.24909…" $\times 100$ or $5.48 \times$ "4.54…"			M1
	Correct answer scores full marks (unless from obvious incorrect working)	24.9		A1 awrt 24.9
				Total 3 marks

Qn	Working	Answer	Mark	Notes
13	2×0.75 (= 1.5) oe or $2 \times 0.75 \times 2$ (= 3) oe		5	M1 for area of rectangle
	$\pi \times (0.5 \div 2)^2$ (= 0.1963) or $\dfrac{1}{2} ¥ \pi \times (0.5 \div 2)^2$ (= 0.09817)			M1 for area of circle **or** area of semicircle
	"1.5" – "0.09817" (= 1.4018…) or "3" – "0.1963" (= 2.8036…)			M1
	"1.4018" $\times 2 \times 250 \div 4$ (= 175.228…) or "2.8036" $\times 250 \div 4$ (= 175.228…) or "1.4018" $\times 250 \div 4$ (= 87.6…)			M1or for 87 – 88
	Correct answer scores full marks (unless from obvious incorrect working)	175		A1 Allow 175 – 176
				Total 5 marks

Qn	Working	Answer	Mark	Notes
14	$LW = 180$ oe $(9LW = 1620)$ or $4L \times (L + W) = 1620$ oe or $5W \times (L + W) = 1620$ oe or $4L = 5W$ oe $(L = \dfrac{5}{4}W$ oe or $W = \dfrac{4}{5}L$ oe$)$		5	M2 for any two correct equations from (i) $LW = 180$ oe $(9LW = 1620)$ (ii) $4L \times (L + W) = 1620$ oe (iii) $5W \times (L + W) = 1620$ oe (iv) $4L = 5W$ oe $(L = \dfrac{5}{4}W$ oe or $W = \dfrac{4}{5}L$ oe$)$ (M1 for one correct equation **or** $1620 \div 9$ $(= 180)$)
	$L \times "\dfrac{4}{5}L" = "180"$ oe or $W \times "\dfrac{5}{4}W" = "180"$ oe or $4L \times \left(L + \dfrac{4}{5}L \right) = 1620$ oe or $5W \times \left(\dfrac{5}{4}W + W \right) = 1620$ oe or $9L \left(\dfrac{4}{5}L \right) = 1620$ oe or $9 \left(\dfrac{5}{4}W \right) W = 1620$ oe or $4 \left(\dfrac{180}{W} \right)^2 + 4("180") = 1620$ oe or $5("180") + 5 \left(\dfrac{180}{L} \right)^2 = 1620$ oe			M1 for a correct equation in terms of one variable only
	Correct answer scores full marks (unless from obvious incorrect working)	$L = 15$ and $W = 12$		A2 for both correct (A1 for one correct) Award 4 marks for $L = 12$ and $W = 15$ dep on M3
				Total 5 marks

Qn	Working	Answer	Mark	Notes
15	$(5 - 2) \times 180 - 112 - 102 - 96 \ (= 230)$ oe eg $540 - 112 - 102 - 96 \ (= 230)$ **or** $360 - (180 - 112) - (180 - 102) - (180 - 96)$ $(= 360 - 68 - 78 - 104 = 360 - 230 = 130)$ oe		5	M1
	$\dfrac{'540' - 112 - 102 - 96}{2} (= 115)$ **or** '130' ÷ 2 (= 65)			M1 dep on previous mark
	$\dfrac{180 \times (8 - 2)}{8} (= 135)$ **or** $180 - (360 \div 8) \ (= 135)$ **or** $\dfrac{360}{8} (= 45)$ as exterior angle of octagon			M1 indep Withhold the mark for $\dfrac{360}{8} (= 45)$ if shown as an interior angle
	$360 - '115' - '135'$ **or** '65' + '45'			M1
	Working required	110		A1 dep on M1
				Total 5 marks

Qn	Working	Answer	Mark	Notes
16	$0.0027 = \dfrac{5.4}{(V)}$ oe		5	M1 for correctly using $density = \dfrac{mass}{volume}$
	$(V =)\dfrac{5.4}{0.0027}(= 2000)$			M1 for correctly rearranging for V
	$p ¥ 10^2 ¥ h = 2000$ oe			M1ft their 2000 for $p ¥ 10^2 ¥ h =$ their V
	$(h =)\dfrac{2000}{p ¥ 10^2}$ oe $(= 6.3661…)$			M1ft their 2000 dep on previous M1 for correctly rearranging for h
	Correct answer scores full marks (unless from obvious incorrect working)	6.4		A1 awrt 6.4
				Total 5 marks

Qn	Working	Answer	Mark	Notes
17	$1.75 \times 10^6 \div 2.4 \times 10^7$ or $1\,750\,000 \div 24\,000\,000$ oe eg $\dfrac{1.75}{24}$		3	M1
	$0.0729(16…)$ or 0.072 or 0.073 or for $\dfrac{7}{96}$ or $7.29(16…)\%$ or 7.2% or 7.3%			A1
	Correct answer scores full marks (unless from obvious incorrect working)	7.3×10^{-2}		A1 accept 7.3×10^{-2} or better $(7.29(16….) \times 10^{-2})$
				Total 3 marks

Qn	Working	Answer	Mark	Notes
18	$5a + 3p = 1.96$ and $3a + 2p = 1.22$ oe **or** $5a + 3p = 196$ and $3a + 2p = 122$ oe	M2 for an arithmetical method (must see the calculation to find 0.22 or 0.26 or 0.74 and 0.48 oe)		5	M1 for setting up both equations oe Allow the use of apples and pears oe throughout, e.g. 5 apples + 3 pears = 1.96 and 3 apples + 2 pears = 1.22
	E.g. $15a + 9p = 5.88$ $15a + 10p = 6.1(0)$ Subtracting $(- p = - 0.22)$ E.g. $10a + 6p = 3.92$ $9a + 6p = 3.66$ Subtracting $(a = 0.26)$ E.g. $5a + 3p = 1.96$ and $6a + 4p = 2.44$ oe Subtracting	E.g. $6.1(0) - 5.88 (= 0.22)$ oe **or** $3.92 - 3.66 (= 0.26)$ oe **or** $1.96 - 1.22 (= 0.74)$ oe and $1.22 - "0.74" (= 0.48)$			M1 for a correct method to eliminate a or p: coefficients of a or p the same **and** correct operation to eliminate selected variable (condone any one arithmetic error) **or** to find the cost of 1 apple and 1 pear
	E.g. $5a + 3("0.22") = 1.96$ or $3a + 2("0.22") = 1.22$ E.g. $5("0.26") + 3p = 196$ or $3("0.26") + 2p = 1.22$ E.g $a + p = 0.48$ oe	E.g. $3 × 0.22 (= 0.66)$ $1.96 - "0.66" (= 1.3(0))$ $"1.3(0)" ÷ 5 (= 0.26)$ **or** $5 × 0.26 (= 1.3(0))$ $1.96 - "1.3(0)" (= 0.66)$ $"0.66" ÷ 3 (= 0.22)$ **or** Apple and pear is 0.48 oe			M1 (dep on M2) for substituting their value found (must be > 0) of one variable into one of the equations **or** for repeating above method to find second variable **or** for third working column allow $k(a + p) = k(0.48)$**or** for a complete arithmetical method to find the other value
	$10¥ "0.26" + 10¥ "0.22"$ or $(a + p =) 0.48 ¥ 10$ oe or $\left[k(a + p) = \right]k(0.48) ¥ \dfrac{10}{k}$				M1 (dep on M3) can be implied by $10(a + p)$ provided a and p must be > 0
	Working required		4.8(0)		A1 dep M2
					Total 5 marks

Qn	Working	Answer	Mark	Notes
19	eg $\cos 38 = \dfrac{9.3}{(AB)}$ oe **or** $\sin'52' = \dfrac{9.3}{(AB)}$ oe **or** $\dfrac{(BC)}{\sin 38} = \dfrac{2 \times 9.3}{\sin'104'}$ oe or $\dfrac{\sin'52'}{9.3} = \dfrac{\sin 90}{(BC)}$ oe		4	M1 or $BN = \dfrac{9.3 \sin 38}{\sin'52'}$ or $9.3 \tan 38 (= 7.2659...)$ **and** $(AB^2) = 9.3^2 + '7.2659...'^2$
	eg $(AB =) \dfrac{9.3}{\cos 38} \ (= 11.80....)$ **or** $(AB =) \dfrac{9.3}{\sin'52'} \ (= 11.80....)$ **or** $(BC =) \dfrac{2 \times 9.3 \times \sin 38}{\sin'104'} (= 11.80...)$ oe			M1 or $(AB =)\sqrt{9.3^2 + '7.2659...'^2} \ (= 11.80...)$
	'11.8' + '11.8' + 9.3 + 9.3 or '11.8' × 2 + 9.3 × 2 oe			M1
	Correct answer scores full marks (unless from obvious incorrect working)	42.2		A1 awrt 42.2
				Total 4 marks

Qn		Working		Answer	Mark	Notes

Qn	Max score	Mean score	Mean %	Edexcel averages: scores of candidates who achieved grade:						
				ALL	5	4	3	2	1	U
1	1.31	2	66	1.31	1.92	80	1.60	0.88	0.64	0.12
2	4.18	6	70	4.18	5.43	77	4.60	3.63	3.05	1.09
3	4.80	8	60	4.80	7.12	66	5.26	3.74	2.32	0.75
4	1.61	3	54	1.61	2.28	59	1.78	1.36	0.87	0.30
5	1.96	4	49	1.96	2.84	55	2.20	1.51	1.00	0.53
6	1.44	3	48	1.44	2.22	49	1.46	0.99	0.74	0.30
7	1.58	4	40	1.58	2.82	40	1.58	0.88	0.51	0.15
8	1.16	3	39	1.16	2.03	38	1.13	0.68	0.51	0.06
9	1.76	5	35	1.76	3.48	37	1.85	0.58	0.35	0.03
10	1.29	3	43	1.29	2.44	36	1.09	0.74	0.37	0.03
11	1.41	4	35	1.41	3.20	26	1.04	0.32	0.13	0.00
12	0.97	3	32	0.97	1.84	26	0.77	0.53	0.31	0.08
13	1.05	5	21	1.05	2.23	17	0.84	0.30	0.14	0.06
14	1.07	5	21	1.07	2.18	15	0.76	0.45	0.36	0.14
15	1.19	5	24	1.19	2.95	12	0.62	0.22	0.01	0.00
16	1.16	5	23	1.16	2.73	11	0.57	0.32	0.04	0.14
17	0.27	3	9	0.27	0.61	8	0.24	0.04	0.00	0.03
18	0.88	5	18	0.88	2.26	7	0.36	0.15	0.03	0.00
19	0.67	4	17	0.67	1.81	6	0.24	0.00	0.05	0.00
	29.76	**80**	**37**	**29.76**	**52.39**	**27.99**	**17.32**	**11.43**	**3.81**	**1.76**

Suggested grade boundaries

Grade	5	4	3	2	1
Mark	40	23	14	8	2