



COMMERCIAL STUDIES

7101/22

Paper 2 Arithmetic

October/November 2016

MARK SCHEME

Maximum Mark: 1000

Published

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Section A

1	(a)	$38\frac{7}{216}$ cao	2	M1 $\frac{16430}{432}$ oe or 38.03(2..) or $\frac{1885}{54}$ or $34\frac{49}{54}$ or 34.9(0..) seen
	(b)	0.032	2	M1 0.0317.....
	(c)	34.70 cao	2	B1 34.699(0.....)
2		\$1524.90	3	M1 13800×13 (=179400) M1 $\times 0.85$ or M1 13800×0.13 (=1794) M1 $\times 0.85$ If M2 not scored then B1ft $\div 100$
3	(a)	1044.58	5	M1 19000×1.018 (=19342) M1 19342×1.018 (=19690) M1 19690×1.018 (=20044) (or M3 19000×1.018^3) M1 "20044.57" – 19000
	(b)	204.60	5	M2 $(8000 \times 5.69 \times 4) / 100$ (=1820.8) -1 eeo M1 $8000 + \text{their } 1820.8$ dep M1 $\div 48$
4	(a)	63	4	M1 $6 \times 24 + 4$ M1 $9289 \div \text{their } 148$ A1 62.76 or 62.8 B1 for rounding their non-integer answer to nearest whole number
	(b)	20 03	2	M1 $13.50 + 6.13$ Allow 8.03 pm but not (0)803 or 8.03 am.
	(c)	40	3	M2 $8 \times 10^5 \div 20$ followed by $\div 1000$ or M1 $\div 1000$ or M1 $8 \times 10^5 \div 1000$ M1 $\div 20$ or M1 20×1000 M1 $800000 \div \text{"20000"}$
5	(a)	1.2696×10^{10} oe	2	M1 $1.38 (x 10^{10}) \times 0.92$ oe Allow 1.27×10^{10}
	(b)	3.26×10^7 art oe	2	M1 $2.9 \times 10^7 \div 0.89$
6	(a)	236360	2	M1 2000×118.18
	(b)	49.5 oe	3	B1 8 hrs 15 mins oe M1 "8h 15m" $\times 6$ NOT 49.3(0)
	(c)	500	2	M1 $60000 \div 120$
7		20 www	6	M1 36×14.30 A1 514.80 M1 $614.80 - \text{"514.80"}$ A1 100 M1 their $100 \div 5$ M1 41×14.3 A1 586.30 M1 $614.80 - \text{"586.30"}$ M1 "28.50" / 5 (=5.70) M1 "14.30" + "5.70"

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8	(a)	28687.50	4	M1 $3.75/100 \times 85000$ A1 3187.5 M1 <i>their</i> $3187.5 + 25500$
	(b)	176000	3	M2 $(6600 \times 100)/3.75$ or M1 $6600 \div 3.75$
9	(a)	60	1	
	(b)	410	1	Allow 408 to 412
	(c)	13	3	M1 $(500 - 60) / (3400 - 0)$ or M1 $k \times 100$ $0 < k < 1$ must be an interval, not a point for first M1 Allow art 12.9 or 13
10	(a)	5160	3	M1 $400 \times 12 (=4800)$ M1 $+ 360$
	(b)	412.50	3	M1 $k \times 198/192$ any k M1 $k = 400$
	(c)	613.40	6	M2 $80\,000 \times 0.007$ (or $0.7/100$ or 0.7%) or M1 $80\,000 \times 0.7$ M1 12×3.20 A1 38.40 M1 "560" + "38.40" + 15
11	(a)	15.15	1	
	(b)	36.20	3	M1 $30(.00)$ M1 $+ 4 \times 1.55$
	(c)	22.50	3	M1 14.50 M1 +8

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Section B

12 (a)	15	4	M1 $1 + 2 + 3 (=6)$ M1 $45/6 (=7.5)$ M1 7.5×2
(b) (i)	56.50	3	M2 □ values / 6 or M1 □ values (=339)
(ii)	54	1	
(iii)	55 www	4	M3 $(54 + 56)/2$ or M2 54 & 56 indicated or M1 Ordered list (52, 54, 54, 56, 58, 65)
13 (a)	97.2	3	M1 0.27 M1 $\times 360$
(b)	9.75×10^7 oe	3	M1 $54 \div 360$ M1 $\times 6.5 \times 10^8$
(c)	27 000 000	3	M1 $6.5 \times 10^8 \times (50/100)$ M1 $\div 12$ (27083 333) If 0 or 1 scored then B1 for correctly rounding > 2sf answer to 2 sf
(d)	2/25	3	M1 28.8/360 M1 0.08 or 8/100 or 4/50 or M1 $(54/360) \times 100 = 15$ M1 $50 - 27 - 15$
14 (a)	900	4	M2 5 correct values (200, 192, 185, 171, 152) or M1 for 4 correct values M1 adding their 5 values
(b)	24	3	M1 $200 - \text{their } 152 (=48)$ M1 $(\text{"48"}/200) \times 100$
(c)	12 258 cao	3	M2 $(\text{"152"} \times 1000) \div 12.4$ or M1 $\text{"152"} \times 1000$ or figs $\text{"152"} \div 12.4$ If M0,1 then B1 for rounding their ans to nearest unit
(d)	2375	2	M1 $\text{"152"} \times 100 \div 6.4$
15 (a)	432	4	M1 $4\,500 \times 0.08$ M1 $\times 1.50$ M1 $\times 0.8$
(b)	8.88	8	M1 $2\,100 \times 9.15 (=19\,215)$ Sale value M1 $19\,215 - 150 (=19\,065)$ Less commission M1 $2\,100 \times 8.22 (=17\,262)$ Purchase price M1 $19\,065 - 17\,262 (1\,803)$ Profit M1 $1\,803 \times 0.85 (= 1\,532.55)$ After tax M1 $1\,532.55 \div 17\,262$ % profit M1 $\times 100 (=8.87\,817\dots)$ B1 ft correct to 2dp