COMPOUND INTEREST AND DEPRICIATION

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Foundation Tier

1.

25	12272.70 12272.71 or 12272.72	M1	for evidence of using a correct first step eg 200000 × 0.015 (= 3000) or 200000 × 1.015 (= 203000)	
		M1	for evidence of a compound interest method eg 203000 × 0.015 (= 3045) or 203000 × 1.015 (= 206045) **or** 206045 × 0.015 (= 3090.675) or 206045 × 1.015 (= 209135.675) **or** 209135.675 × 0.015 (= 3137.035...) or 209135.675 × 1.015 (212272.710...) **or** 200000 × 1.015^t, $t \geq 2$	values may be rounded or truncated to 2 dp
		A1	for 12272.7(0) or 12272.71 or 12272.72 SC B2 for 212272.7(0) or 212272.71 or 212272.72	

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Foundation Tier

2.

23	(a)	Ben (supported)	P1	shows how to work interest out for one year eg 2000 × 0.025 (= 50) **or** 1600 × 0.035 (= 56) **or** 150 **or** 168 **or** 2000×1.025 (= 2050) **or** 1600 × 1.035 (= 1656)	Throughout accept figures ±1 pence which do not need to be presented in money notation (to 2dp) or with monetary symbols.
			P1	shows compound interest calculation for one account eg 2050→51.25 or 2101.25→52.53 or 1656→57.96 or 1713.96→59.99 eg 2000×1.025^3 (= 2153.78) **or** 1600 × 1.035^3 (= 1773.95)	Award mark for a correct process shown, for which these figures can be taken as implying the process.
			P1	shows complete compound interest calculation for both accounts eg 2000×1.025^3 (= 2153.78) **and** 1600 × 1.035^3 (= 1773.95) OR one interest stated correctly eg 153.78 or 173.95	As above, award mark for both correct processes shown for both accounts, which these figures can be taken as implying the process.
			C1	Ben (shares) supported by 153.78 **and** 173.95	Accept an answer of "shares".
	(b)	conclusion	C1	conclusion (ft) eg no change, shares now 182.5… **Acceptable examples** no since shares/Ben now 182.5 Still Ben since 182.5 > Ali No; he only gets 8.57 more No; he gets 68.56 instead of 59.98 (3rd yr) No; Ben already gets more interest, he would just get even more **Not acceptable examples** no shares now 182.5 Still Ben since less than Ali 182.5 > 153.78 no; he needs 20.17 more	Conclusion needs to be supported. ft is from part (a); calculations carried out as part of (b) need to be correct for the comparison to be valid.

Pearson Edexcel – Specimen 2 - Paper 2 (Calculator) Foundation Tier

3.

13			46	M1	for process to find value after 1 year
				M1	for process to find value after 4 years
				A1	cao

Pearson Edexcel – Specimen 1 - Paper 2 (Calculator) Foundation Tier

4.

25		8112	M1	for complete method, eg 7500×1.04^2
			A1	cao

OCR Thursday 05 November 2020- Morning (Non-Calculator) Foundation Tier

5.

11	(a)	30	2	M1 for $\frac{6}{100} \times 500$ **oe**	Answer 530 implies M1
11	(b)	650	2	M1 for $500 + 5 \times$ *their* (a)	

OCR Monday 11 November 2019 – Afternoon (Calculator) Foundation Tier

6.

23		3.2 nfww	6	**M3** for 1500×1.03^5 or **M2** for 1500×1.03^k where k is 2, 3 or 4 or **M1** for 1.03 soi perhaps by 1545 AND **M2** for $\frac{their\ 1738.91 - 1500}{5 \times 1500}$ [× 100] oe or **M1** for (*their* 1738.91 − 1500) ÷ 5 or for (*their* 1738.91 − 1500) ÷ 1500 Alternative (not using a base amount) **M5** for [$r =$] $(1.03^5 - 1) ÷ 5$ or **M4** for $1.03^5 - 1$ or **M3** for 1.03^5 or **M2** for 1.03^k (where k is 2, 3 or 4) or **M1** for 1.03	Condone 3.2% as final answer soi by 1738 to 1739 soi by [2 yr =] 1591[.35], [3 yr =] 1639[.09..] or [4 yr =] 1688.[26...] *their* 1738.91 must come from a valid attempt to find compound interest for at least 2 years **M2** soi by 0.0317 to 0.032 or soi by 3.17 to 3.19 **M1** soi by 47.6[0] to 47.8[0] or soi by [0].1586 to 0.1594

OCR Tuesday 21 May 2019 – Morning (Calculator) Foundation Tier

7.

22			2 602.02 cao	4	B3 for 27 602.02 soi by 2 602[.02…] as final answer OR M2 for 25 000 × (1.02)^5 oe implied by 27 602[.02…] See appendix OR M1 for 25 000 × (1.02)^k oe implied by 26 010 ($k \neq 5$ and $k \geq 2$) See appendix

OCR Tuesday 6 November 2018 – Morning (Calculator) Foundation Tier

8.

23			15.38 cao	6	M2 for 6400 × 1.025^8 oe soi by 7797.78 or M1 for 1.025^k (k>1) soi 6724 AND M2 for 6400 + 6400 × [0].027 × 8 oe soi 7782.4 or M1 for 6400 × [0].027 oe soi 172.8 or 1382.4 AND M1 for subtracting *their* two totals or *their* two interests e.g. *their* 7797.7785… – *their* 7782.4 or *their* 1397.78 – *their* 1382.4	

OCR Wednesday 8 November 2017– Morning (Calculator) Foundation Tier

9.

15			1500 × 2 ÷ 100 oe	M1	Follow method if **calculations** seen Allow 1500 × [0].02	**Mark by ONE method only** 1500 × 1.02 = 1530 scores **M1 B2**
			1500 + 30 = 1530	B2	B1 for 30 or 1530 (no addition shown) or (1606.50 – 1530)÷1530 × 100 [= 5]	30 or 1530 (no working) scores **M0B1**
			1530 × 1.05 oe leading to 1606.5[0]	M1	or 76.50 ÷ 1530 × 100 [= 5]	May be seen in stages Non-calculator method must be complete to score M1 1% → 1530 ÷ 100 = 15.3
			OR		Follow method if **explanation** seen	5% → 15.3 × 5 = 76.5 1530 + 76.5 [= 1606.5]
			Alternative marking 2% of 1500 = 30 1500 + 30 = 1530 5% of 1530 = 76.5[0] 1530 + 76.5[0] = 1606.5[0]	B1 B1 B1 B1		

OCR Thursday 25 May 2017 – Morning (Calculator) Foundation Tier

10.

17			277 830	3	**M2** for 240000 × 1.05³ or **M1** for 240000 × 1.05² soi by or 264600 If 0 scored **SC1** for 291721[.5] or 291722	

OCR Tuesday 13 June 2017 – Morning (Calculator) Foundation Tier

11.

2			11 424	3	**B2** for 3024 OR **M1** for 8400 × [0].12 or 1008 **M1** for [8400 +] *their* 1008 × 3 If 0 scored **SC1** for 11 801[. ..]	**M0** if used for compound interest *Their* 1008 must be seen to come from a calculation with 8400 and 12 **Non-calculator methods** Candidates must have equivalent, correct, processes at each stage to score **M** marks Eg 10% so ÷ 10 and 2% so ÷5 then add Answers may be incorrect but process may be implied by correct values Eg (10%) 840 + (2%) 168 From compound interest

OCR Sample Question Paper 3 – Morning/Afternoon (Calculator) Foundation Tier

12.

19	(a)	(Account) A (by) 103[p]	5 3 AO1.3b 2 AO3.1d	**B2** for 10 927.27 and **B2** for 10 926.24 or **B1** for 10 400 or 10 712 If zero scored **M1** for 1.03³ **oe** used **M1** for 1.04, 1.03 and 1.02 used **oe**	
	(b)	He may not want to leave it there for 3 years	1 1 AO2.3a	Accept any valid reason	

13.

26	**Alternative method 1**		
	6000 × 1.03 or 6180 or 6000 × 0.03 or 180 or 6000 × 1.01 or 6060 or 6000 × 0.01 or 60	M1	6000 × 1.05 or 6300 6000 × 0.05 or 300
	their 6180 × 1.03 or 6365.4(0) or their 6180 × 0.03 or 185.4(0) or 365.4(0) or their 6060 × 1.05 or 6363 or their 6060 × 0.05 or 303 or 363	M1dep	6000 × 1.03² or 6000 × 1.0609 or 6000 × 1.01 × 1.05 or 6000 × 1.0605 or 6300 × 1.01 or 6300 × 0.01 or 63
	6365.4(0) and 6363 and No or 365.4(0) and 363 and No	A1	accept 2.4(0) difference to imply 'No'
	Alternative method 2		
	1.03 or 1.01 or 1.05	M1	
	1.03² or 1.03 × 1.03 or 1.0609 or 0.0609 or 6.09(%) or 1.01 × 1.05 or 1.0605 or 0.0605 or 6.05(%)	M1dep	
	1.0609 and 1.0605 and No or 0.0609 and 0.0605 and No or 6.09(%) and 6.05(%) and No	A1	accept 0.0004 difference to imply 'No' accept 0.04(%) difference to imply 'No'

Additional Guidance is on the next page

	Additional Guidance	
	Accept any clear indication that the Offer 1 amount is different to the Offer 2 amount for 'No'	
	If build up methods are used they must be complete	
	6000×0.03^2 implies 6000×0.03	M1
	1.03^3 implies 1.03	M1
	360 without 180 seen (simple interest)	M0
26 cont	If a different starting value is used, apply Alt 2 with correctly evaluated answers eg $600 \times 1.03^2 = 636.54$ $600 \times 1.01 \times 1.05 = 636.30$ No, pay less with Offer 1 (condone incorrect choice of Offer 1) $500 \times 1.03 = 515$ $515 \times 1.03 = 530.45$ $500 \times 1.01 = 505$ $505 \times 1.05 = 530.25$ No, they are different	M1M1A1 M1M1A1

AQA Tuesday 12 June 2018 – Morning (Calculator) Foundation Tier

14.

26	2 × 12 × 150 × 1.025 or 24 × 150 × 1.025 or 3690 or 2 × 12 × 150 × 0.025 or 24 × 150 × 0.025 or 90	M1	Investment A oe
	1.03 × 3500 or 3605	M1	Investment B oe eg 0.03 × 3500 + 3500 or 105 + 3500 May be implied from $1.03^2 × 3500$
	$1.03^2 × 3500$ or 1.03 × their 3605 or 1.0609 × 3500 or 3713(.15) or 0.03 × their 3605 or 108(.15)	M1dep	oe Dependent on 2nd M1
	23.15	A1	Condone £23.15p

Additional Guidance		
If build up methods are used they must be complete		
1% = 35 3% = 95 (error without showing method) 95 + 3500 or 3595		M0
1% = 35 3% = 35 × 3 = 95 (error but correct method shown) 95 + 3500 or 3595		M1
$1.03^3 × 3500$ (full method incorrect but implies 1.03 × 3500)		M0M1M0

15.

14	1700 × 0.04 or 68 or 1700 × 1.04 or 1768 or 4(%) × 3 or 12(%)	M1	oe
	1700 × 0.04 × 3 or their 68 × 3 or (their 1768 – 1700) × 3 or 1700 × (their 12 ÷ 100) or 1700 × (1 + their 12 ÷ 100) (– 1700) or 1904 (– 1700)	M1dep	oe
	204	A1	

Additional Guidance	
Answer of 1904 with or without 204 seen in working	M1M1A0
1700 × 3 = 5100 and their 5100 × 0.04	M1M1
Condone 1700 × 1.04^3 or an answer of 212.26(…) or 212.27 or 1912.26(…) or 1912.27 for the first method mark	M1M0A0
680 = 4% and 680 × 3 implies 4(%) × 3 for the first M1 mark only 680 is not their 68 for the second method mark	