SUBTITUTION

Pearson Edexcel - Thursday 4 June 2020 - Paper 2 (Calculator) Foundation Tier

1.

15	(a)	–13	M1	for substitution eg 3×5 and 4×-7 **or** 15 and –28	3×5 (= 15) and 4×-7 (= –28) may be seen separately but both must be seen for the award of M1
			A1	cao	35 and 4–7 do not get the mark unless multiplication is shown eg 35 = 15 is evidence of multiplication and should not be seen as choice
	(b)	5	M1	for $38 = 3 \times 6 + 4y$ **or** $38 - 18$ (=20) **or** for a complete method to make y the subject eg $y = \frac{T - 3x}{4}$	eg $y = (T - 3x) \div 4$
			A1	cao	

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2.

11	23	M1	for substitution eg. 7×5 and 3×-4 or $7(5) + 3(-4)$	7×5 (= 35) and 3×-4 (= −12) may be seen separately but both must be seen for the award of M1
		A1	cao	

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Foundation Tier

3.

9	30	M1	$2 \times 9 + 3 \times 4$	May be shown in stages but an intention to add 2×9 and 3×4 must be clear
		A1	cao	

Pearson Edexcel - Thursday 24 May 2018 - Paper 1 (Non-Calculator) Foundation Tier

4.

16	(a)	14	M1	for 4×5 and 3×-2, the substitution may be seen in two separate calculations, eg 4×5 (= 20) and 3×-2 (= −6)	
			A1	cao	
	(b)	$4e^2 + 8e$	B2	for $4e^2 + 8e$	
			(B1	for $4e^2$ or $8e$)	Note: $4e^2 + 8e = 12e^3$ for example gets B1 only
	(c)	11	M1	for a correct first step eg $3 \times m - 3 \times 4 = 21$ oe **or** $m - 4 = 21 \div 3$ (= 7) oe	Showing ÷3 by each side of equation is sufficient
			A1	cao	

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

5.

10	a		−2	M1 A1	For subtraction of 7 from both sides or division of all terms by 3 as first step of solution cao
	b		8	M1 A1	For substitution 3×6 − 2×5 cao

Pearson Edexcel – Specimen 2 - Paper 3 (Calculator) Foundation Tier

6.

27	(a)		1.95	M1 M1 A1	method to find one temperature eg 4500 ÷ 1200 for complete method cao
	(b)		D	B1	cao

Pearson Edexcel – Specimen 1 - Paper 3 (Calculator) Foundation Tier

7.

10		38 15	B1 cao P1 (47 - 2) ÷ 3 A1 cao	

OCR Thursday 7 June 2018 – Morning (Non Calculator) Foundation Tier

8.

16	**a**		$(a, a - b)$	**2**	**B1** for one correct coordinate	Condone eg 1*a*
	b		$a = 8$ $b = 3$	**2** **2**	**M1** for $2a = 16$ **soi** **M1** for $2a - b = 13$ **soi** If 0 scored **SC1** for $a = (8,0)$ or $b = (0,3)$	Eg their values of *a* and *b* correct for $2a - b = 13$

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

9.

6	**(a)**		8	**2**	**M1** for $5y = 4 \times 10$ oe	
	(b)		$\frac{4}{5}x$ or [0].8*x* final answer	**1**		Accept alternative fractions and forms such as $4x \div 5$

OCR Thursday 2 November 2017– Morning (Calculator) Foundation Tier

10.

6	**(a)**	**(i)**	$4p$	**1**		
		(ii)	$5j - 2k$	**2**	**B1** for $5j$ or $-2k$ in final answer	
	(b)		144	**2**	**M1** for 120 or 24 or 10 × 12 + 6 × 4	Not 120h or 24t
	(c)		$d = \frac{f-e}{7}$ oe nfww	**2**	**M1** for correct first step or $\frac{f-e}{7}$	$e + 7d = f$ or $e - f = -7d$ oe

Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier

11.

18		11	M1 process of substitution demonstrated eg $5\times3 + 2\times-2$ A1 cao

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

12.

5	**(a)**		62 cao	**2**	**B1** for 48 or 14 or **M1** for 3 × 16 + 2 × 7	
	(b)		11 cao	**2**	**M1** for 2 + 6 ×1.5 If 0 scored **SC1** for answer –7	
	(c)		$d = \frac{c}{7}$ oe	**1**	Accept d = c ÷ 7 and $\frac{c}{7} = d$	$\frac{c}{7}$ or c ÷ 7 with no subject scores 0

OCR Sample Question Paper 1 – Morning/Afternoon (Calculator) Foundation Tier

13.

14	**(a)**		£20 000	**1** 1 AO1.3a		
	(b)		£14 580 or £14 600	**2** 2 AO1.3a	**M1** for $20\,000 \times 0.9^3$	
	(c)		7 years	**2** 1 AO1.3a 1 AO3.1c	**M1** for 2 trials shown	

AQA Thursday 4 June 2020 – Morning (Calculator) Foundation Tier

14.

Q	Answer	Mark	Comments
3	$x - 4$	B1	

AQA Thursday 11 June 2019 – Morning (Calculator) Foundation Tier

15.

22(a)	22.6 or $\frac{113}{5}$ or $22\frac{3}{5}$	B1	
	Additional Guidance		
	Condone $22\frac{6}{10}$		B1

22(b)	**Alternative method 1**		
	n^2 will be positive and $\frac{12}{n}$ will be negative and positive – negative = positive	B2	oe B1 n^2 will be positive or $\frac{12}{n}$ will be negative
	Alternative method 2		
	n^2 will be positive and $-\frac{12}{n}$ will be positive and positive + positive = positive	B2	oe B1 n^2 will be positive or $-\frac{12}{n}$ will be positive
	Additional Guidance		
	For 'n^2 will be positive' accept the square of a negative number is a positive		
	For 'n^2 will be positive' condone square or squared numbers are positive		
	For 'positive – negative = positive' condone +(ve) – –(ve) = +(ve)		

AQA Tuesday 6 November 2018 – Morning (Non-Calculator) Foundation Tier

16.

19	3.5 or $3\frac{1}{2}$ or 49 or (49 =) $\frac{98}{2}$	M1	
	3.5 – 49 or 49 – 3.5 or $3\frac{1}{2} - 49$ or $49 - 3\frac{1}{2}$ or $\frac{7}{2} - \frac{98}{2}$ or $\frac{98}{2} - \frac{7}{2}$	M1dep	45.5 (oe) implies M2
	–45.5 or $-45\frac{1}{2}$ or $-\frac{91}{2}$	A1	
	Additional Guidance		
	$\frac{7}{2}$ without $\frac{98}{2}$		M0
	7^2 without 49		M0
	$\frac{7}{2} - 7^2$ (no further correct work)		M0
	$7^2 = 14$, 3.5 – 14 = –10.5		M1M0A0
	$\frac{7}{2} - 49$		M1
	$3.5 - 7^2$		M1

AQA Thursday 7 June 2018 – Morning (Calculator) Foundation Tier

17.

	1.5 × 7 + 0.5 or 10.5 + 0.5	M1	oe
	11	A1	
	Additional Guidance		
13(a)	1.5 × 7 = 10.5 and 0.5 × 7 = 3.5 and 10.5 + 3.5 = 14		M0A0
	7 × 1.5*r* + 0.5		M0A0
	7 × 1.5*r* + 0.5 and answer 11*r*		M0A0
	7 × 1.5*r* + 0.5 and answer 11 (has recovered)		M1A1

13(b)	**Alternative method 1**		
	20 – 0.5 or 19.5 or $r = \frac{w - 0.5}{1.5}$	M1	oe
	their 19.5 ÷ 1.5	M1dep	oe (20 – 0.5) ÷ 1.5 is M2
	13	A1	
	Alternative method 2		
	20 – their 11 from part (a) or 9	M1	implied by '6 extra cups (of rice)'
	7 + (their 9 ÷ 1.5) or 7 + 6	M1dep	
	13	A1	
	Additional Guidance		
	13 from incorrect working eg rounding 20 ÷ 1.5 = 13 eg scaling 11 and rounding ie 20 ÷ 11 × 7 = 13		M0M0A0
	Brackets omitted ie 20 – 0.5 ÷ 1.5, unless recovered		M0M0A0
	1.5 × 13 + 0.5 = 20, unless 13 selected		M1M1A0
	1.5 × 13 = 19.5, unless 13 selected		M1M1A0
	Trial and improvement, unless answer 13		M0M0A0

AQA Thursday 25 May 2017– Morning (Non-Calculator) Foundation Tier

18.

12(a)	20	B1	allow $P = 20$
	Additional Guidance		

12(b)	53 – 11 or 42 or 33 × 3 or 99 or 11 × 2 or 33 – 11 or 22	M1	
	their 42 ÷ 3 or 14 or their 99 – 53 – their 22 or (their 22 × 3) – their 42 or 24	M1dep	oe eg build up - allow one error
	33 – 11 – their 14 or their 24 ÷ 3	M1dep	dep on M1M1
	8	A1	
	Additional Guidance		
	3 × 14 + 11 = 53		M2

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

19.

19(a)	6, 15, 24, 60 in any order	B2	B1 for 6, 15, 24, 60 with no more than one additional value or three correct values with no more than one incorrect value
	Additional Guidance		
	Ignore repeated values for B2 and B1		
	6, 10, 15, 24, 60		B1
	6, 10, 15, 24		B1
	6, 10, 15, 24, 36		B0
	2×3, 5×3, 2×12, 5×12		B0
	$6xy$, $15xy$, $24xy$, $60xy$		B0

19(b)	$\frac{2-12}{2}$ or one correctly evaluated trial with correct substitutions for $x = 2$ or 5 and $y = 3$ or 12 or two correct values from $-\frac{10}{2}, -\frac{1}{2}, -\frac{7}{5}, \frac{2}{5}$ oe or two correct values from $-5, -0.5, -1.4, 0.4$ oe	M1	$\frac{2-3}{2} = -\frac{1}{2}$ oe or $\frac{5-12}{5} = -\frac{7}{5}$ oe or $\frac{5-3}{5} = \frac{2}{5}$ oe
	$-\frac{10}{2}$ or -5	A1	
	Additional Guidance		
	Two separate correct values can be in either fraction or decimal form		
	$2 - 12 \div 2 = -5$ (recovered)		M1A1
	$2 - 12 \div 2$		M0A0
	An example of an incorrect substitution with different values of x eg $\frac{5-12}{2} = -\frac{7}{2}$		

AQA Sample Paper 1– Morning (Non-Calculator) Foundation Tier

20.

12	ab or -12 and -3, 8 and -12 seen	B2	B1 for $(\frac{b}{a}=)-3$ or $(a-b=)8$ or $(ab=)-12$

21.

20(a)	41 or 29 used	M1	
	12	A1	
20(b)	59 or 50 used	M1	
	109	A1	

22.

23	$3 \times 1 - 1^3 = 3 - 1$ $= 2$ and correct	B1	Condone No, they should be 1 and -2 for B1B1 SC1 $w = -2$
	$3 \times (-1) - (-1)^3 = -3 + 1$ $= -2$ and incorrect	B1	

AQA Sample Paper 2– Morning (Calculator) Foundation Tier

23.

15(a)	12	B1	
15(b)	7×9 or 63 or $12 + \frac{27}{4} \times 6$ or (£)52.5(0)	M1	
	63 or (£)52.5(0) and No	A1	
15(c)	$a = 9$	B1	
	Substitutes a correct pair of values for n and C into $C =$ their $9 + b(n-1)$ or method for gradient eg $\frac{41-9}{5-1}$	M1	oe
	$b = 8$	A1	

AQA Sample Paper 3– Morning (Calculator) Foundation Tier

24.

8	5×7 (+) 9×-2 or 35 or 18	M1	
	17	A1	