

EXPANDING AND FACTORISING

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Foundation Tier

1.

19	(a)	$x^2 - 4x$	B1	cao	
	(b)	$5(3y - 2)$	B1	cao	
	(c)	9	M1	for a correct first stage, eg. expanding brackets, $7 \times f - 7 \times 5 (= 28)$ oe or for division of both sides by 7, eg. $\frac{7(f-5)}{7} = \frac{28}{7}$	
			A1	cao	

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Foundation Tier

2.

16	(a)	$10m - 15$	B1	for $10m - 15$ oe	Accept any reversing of order in the expression
	(b)	$3(n + 4)$	B1	for $3(n + 4)$ oe	Accept any answer in reverse order

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

3.

19	(a)	8	M1	for a correct first step eg $3x - 12 = 12$ or $3(x - 4) \div 3 = 12 \div 3$	
			A1	cao	
	(b)	$3b(3 - b)$	M1	for $3(3b - b^2)$ or $b(9 - 3b)$ or $3b$ (two term linear expression)	
			A1	cao	

Pearson Edexcel - Tuesday 12 June 2018 - Paper 3 (Calculator) Foundation Tier

4.

20		$9p + 13$	M1	for method to expand one bracket, eg $5 \times p + 5 \times 3 (= 5p + 15)$ or $2 \times 1 - 2 \times 2p (= 2 - 4p)$ or $-2 \times 1 - 2 \times -2p (= -2 + 4p)$	If an attempt is made to multiply by -2 in the second brackets then it must be done consistently.
			A1	cao	

Pearson Edexcel - Wednesday 8 November 2017 - Paper 3 (Calculator) Foundation Tier

5.

17	(a)		$4(m + 3)$	B1	for $4(m + 3)$ or $2(2m + 6)$
	(b)		term, expression	B1	for 'term' in the 1 st space
				B1	for 'expression' in the 2 nd space

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

6.

19	a		$y(y+27)$	B1
	b		t^6	B1
	c		w^5	B1

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

7.

17	(a)		$4x + 6y$	M1 for $4x$ or $6y$ A1 for $4x + 6y$ or $2(2x + 3y)$
	(b)		$5(2x - 3)$	B1 cao
	(c)		4	M1 for method to isolate terms in p on one side and constants on the other side A1 cao

8.

24	(a)		$13y - 1$	M1 for expansion of one bracket A1 for full simplification
	(b)		$35u^3w^7$	B1 for 2 of 35, u^3 and w^7 correct B1 cao

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

9.

28			$(x+4)(x-4)$	B1 for $(x+4)(x-4)$
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10.

29			$x=7, y=-3$	M1 for correct process to eliminate one variable (condone one arithmetic error) M1 (dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error) A1 for both correct solutions
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OCR Tuesday 5 November 2019 – Morning (Calculator) Foundation Tier

11.

7	a		$3(2 + 3y)$ final answer	1		Condone missing final bracket
	b		$2x(x + 3)$ final answer	2	B1 for $x(2x + 6)$ or $2(x^2 + 3x)$	Condone missing final bracket

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

12.

6	(a)		$12x + 8$ final answer	1		
	(b)		$3(c - 2d)$ final answer	1		Condone last bracket missing and $3(1c - 2d)$

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

13.

14	(a)	(i)	7 cao	1		Do not allow a^7 or a^7
		(ii)	12 cao	1		Do not allow b^{12} or b^{12}
	(b)		$9x(2x + 1)$ final answer	2	B1 for $9(2x^2 + x)$ or $x(18x + 9)$ or $3x(6x+3)$ or $3(6x^2+3x)$	condone final bracket missing

OCR Monday 24 May 2018 – Morning (Calculator) Foundation Tier

14.

7	(a)	(i)	14	1		
		(ii)	18	1		
		(iii)	6.5 final answer	2	M1 for $8x = 46 + 6$ or better or $x = \frac{b}{a}$ from <i>their</i> $ax = b$ $a \neq 1$	Accept $6\frac{1}{2}$ or $\frac{13}{2}$ must be an equation Accept a fully correct flow chart for M1
	(b)		-6 and -5 final answer	3	B2 for $(x + 6)(x + 5)$ Or M1 for $(x \pm a)(x \pm b)$ where $(a + b) = 11$ or $(ab) = 30$ or pairs of factors giving two correct terms may be implied in a table And B1 for correct solutions FT <i>their</i> quadratic factors	

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

15.

12	a		$4cd - 20c$ final answer	2	M1 for $4cd$ or $-20c$ in final answer	Condone $4dc$ $4cd + -20c$ scores M1 only Do not accept eg $4 \times c \times d$
	b		$3x^2 - 10x - 8$ final answer	2	M1 for at least three of the following terms correct $3x^2 - 12x + 2x - 8$	May be seen in a table $-10x$ implies both $-12x$ and $2x$
	c		$x \leq 8$	2	Mark final answer M1 for $3x \leq 22 + 2$ or $3x < 22 + 2$ or $3x = 22 + 2$ or $x > 8$ or $x = 8$ If 0 scored, SC1 for answer $x \leq \frac{20}{3}$ or $x \leq 6\frac{2}{3}$	Condone $x < 8$ for 2 marks Condone 8 on answer line for M1

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

16.

13	(a)	(i)	$6a + 10b$ or $2(3a + 5b)$ final answer	2	M1 for $6(a + b) + 2 \times 2b$ oe If 0 scored SC1 for $3a + 5b$ as final answer	M1 for EG $a + b + a + b + a + b + a + b + a + b + a + b + 2b + 2b$ or $2 \times (3a + 3b + 2b)$ etc
		(ii)	$6b(a + b)$ final answer	2	B1 for $6(ab + b^2)$ or $b(6a + 6b)$ or $3(2ab + 2b^2)$ or $3b(2a + 2b)$ or $2(3ab + 3b^2)$ or $2b(3a + 3b)$	
	(b)		4 by 1 rectangle with $4a + 4b$ and $2b$ or 2 by 2 rectangle with $2a + 2b$ and $4b$ or 1 by 4 rectangle with $a + b$ and $8b$ stated or marked on rectangle	5	B4 for $4a + 4b$ and $2b$ or $2a + 2b$ and $4b$ or $a + b$ and $8b$ or B3 for rectangle drawn as (4 by 1) or (2 by 2) or (1 by 4) or B2 for one of $2a + 2b$ or $4a + 4b$ or $4b$ or $8b$ or B1 for any rectangle of 3 or more tiles drawn with $a+b$ or $2b$ marked on individual tiles	Accept unsimplified throughout Once correct expression(s) seen, ignore incorrect simplification to answer line In answer space or intended as final length and width Must clearly be answer May be in attempt to factorise EG $4b(2a + b)$ Accept unsimplified EG $a+b + a+b$ Only tiles that form the perimeter needed

OCR Monday 6 November 2017– Morning (Calculator) Foundation Tier

17.

6	a	i	$13c - 7d$ final answer	3	B2 for one term correct in final answer or M1 for $[4(c + 2d)] = 4c + 8d$ seen or $[3(3c - 5d)] = 9c - 15d$ seen	$13c + - 7d$ scores B2 only
		ii	$20ab$ final answer	1		Accept $20ba$
	b	i	$2(3g + 4h)$ final answer	1		Condone omission of final bracket
		ii	$5x(x - 3)$ final answer	2	M1 for $5(x^2 - 3x)$ or $x(5x - 15)$ or $5x(x + 3)$	Condone omission of final bracket

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

18.

20	(a)		$3(f + 3)$	B1	cao
	(b)		$(x - 5)(x + 3)$	M1	for $(x \pm 5)(x \pm 3)$
				A1	cao

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

19.

7	(a)	$12t - 10u$ or $2(6t - 5u)$ cao	2	B1 for $12t$ or $-10u$ in final answer	$12t + -10u$ scores B1
	(b)	$5(v + 4w)$	1		Condone omission of final bracket
	(c)	-3 and -7	3	M2 for $(x + 3)$ and $(x + 7)$ M1 for $(x + a)$ and $(x + b)$ where $ab = 21$ or $a + b = 10$ B1 ft their quadratic factors If 0 scored SC1 for answer ± 7 and ± 3	ft their quadratic factors condone omission of final bracket

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

20.

4	(a)	$3x - 2$ final answer	2	M1 for $5x - 10$ or $-2x + 8$ or B1 for $3x + j$ or $kx - 2$ ($k \neq 0$) final answer	$3x + -2$ scores 1 mark j can be 0
	(b)	$2x(5x + 3)$	2	B1 for $2(5x^2 + 3x)$ or $x(10x + 6)$	
	(c)	x^{10}	1		Not, $x \times x \times \dots$

AQA Tuesday 19 May 2020 – Morning (Non-Calculator) Foundation Tier

21.

Q	Answer	Mark	Comments
25	$2x(x + 3)$	B2	B1 $x(2x + 6)$ or $2(x^2 + 3x)$
	Additional Guidance		
	Condone missing final bracket $2x(x + 3$		B2
	Condone $(2x + 0)(x + 3)$		B2
	Condone multiplication signs for B1 but not B2 Condone $1x$ for x for B1 but not B2 Condone incorrect algebraic notation for B1 but not B2 eg $x(x2 + 6)$		
	Do not allow further work for B2 but ignore further work for B1 eg $2x(x + 3) = 2x(3x)$ eg $x(2x + 6) = x(8x)$		B1 B1

AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier

22.

Q	Answer	Mark	Comments
27	$x^2 - 2x + 1$	B1	

AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier

23.

Q	Answer	Mark	Comments
30	$8c + 12$ or $-5c + 1$	M1	may be seen in a grid implied by $3c + 12 + 1$ or $8c + 13 - 5c$
	$3c + 13$	A1	
	Additional Guidance		
	Do not ignore further working eg $3c + 13 = 16c$ eg $3c + 13, c = \frac{-13}{3}$		M1A0 M1A0
	$8c + 12 - 5c - 1$		M1
	$8c + 3 - 5c + 1$		M1

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

24.

19(a)	$2a^2 + 15a - 1$	B3	B2 $2a^2 + 15a$ or $2a^2 - 1$ or $15a - 1$ B1 $2a^2$ or $15a$ or -1
	Additional Guidance		
	$2a + 15a - 1 = 17a - 1$		B2
	$2a^2 + 15a + -1$		B2
	Do not ignore further incorrect algebraic simplification for B3 $2a^2 + 15a - 1 = 17a - 1$		B2
Do not ignore further incorrect algebraic simplification for B2 $2a + 15a - 1 = 17a - 1 = 16a$ $2a^2 + 15a - 1 = 17a - 1 = 16a$		B1	

19(b)	$4y(6y - 5)$ or $-4y(5 - 6y)$	B2	B1 $2y(12y - 10)$ or $-2y(10 - 12y)$ or $y(24y - 20)$ or $-y(20 - 24y)$ or $4(6y^2 - 5y)$ or $-4(5y - 6y^2)$ or $2(12y^2 - 10y)$ or $-2(10y - 12y^2)$
	Additional Guidance		
	Ignore any 'solutions' seen eg $4y(6y - 5)$ in working with 0 and $\frac{5}{6}$ on answer line		B2
	Condone $4y \times (6y - 5)$		B2
	Condone $y \times (24y - 20)$		B1
	$(4y + 0)(6y - 5)$		B1
Do not ignore further incorrect algebraic simplification for B2			

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

25.

19	$x^2 - 4x$	B1	
	Additional Guidance		

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

26.

26	$(x + 2)(x - 6)$	B1	
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