Indices

Question	Answer	Mark	Mark scheme	Additional guidance
17 (a)	$y^2 + 5y$	B1	cao	
(b)	$2(2a - 3)$	B1	cao	
(c)	2.9	M1	for a correct first stage eg. expanding the brackets, $2 \times 5x - 2 \times 4$ ($= 10x - 8$) **or** division of both sides by 2, eg $\frac{2(5x-4)}{2} = \frac{21}{2}$	
		M1	for isolating terms in x eg $10x = 21 + 8$	
		A1	oe	
(d)	$20\,e^3f^4$	M1	for any two of 4×5 (=20), e^{2+1} ($=e^3$), f^{1+3} ($=f^4$) in a product or written as individual terms	Do not award if there is contradiction
		A1	cao	

June 2024 Paper 1

Question	Answer	Mark	Mark scheme	Additional guidance
18	1	B1	cao	

Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)(i)	1	B1	cao	
(ii)	$\frac{1}{25}$	B1	oe	
(b)	2^6	M1	for a correct first step using a rule of indices, eg 2^{5+4} (= 2^9) or 2^{5-3} (= 2^2) or 2^{4-3} (= 2^1) **or** for $2 \times 2 \times 2 \times 2 \times 2 \times 2$ or 64	
		A1	for 2^6	Accept $n = 6$

June 2023 Paper 3

Question	Answer	Mark	Mark scheme	Additional guidance
20 (a)	m^6	B1	cao	
(b)	x^{13}	B1	cao	
(c)	$4p^3 + 12p^2$	B2	for $4p^3 + 12p^2$	
		(B1	for expanding the bracket to get $p^3 + 3p^2$ **or** $4p^3$ **or** $12p^2$)	

November 2021 Paper 2

Question	Answer	Mark	Mark scheme	Additional guidance
20 (a)	c^3	B1	cao	
(b)	d^{12}	B1	cao	

November 2022 Paper 1

Question	Answer	Mark	Mark scheme	Additional guidance
21	2^6	M1	for the start of a method of simplification, eg 2^{-5+8} (= 2^3) or $2^{-5\times2}$ (= 2^{-10}) or $2^{8\times2}$ (= 2^{16})	
		A1	cao SC B1 for answer of 64 or 8^2 or 4^3 if M0 scored.	

Question	Answer	Mark	Mark scheme	Additional guidance
21 (a)	x^{15}	B1	cao	
(b)	$40 - 10x$	M1	for method to expand one bracket or collect like terms, eg $4 \times x + 4 \times 3$ (= $4x + 12$) **or** $7 \times 4 - 7 \times 2x$ (= $28 - 14x$) **or** $4 \times x - 7 \times 2x$ (= $4x - 14x$) **and** $4 \times 3 + 7 \times 4$ (= $12 + 28$)	
		A1	oe	
(c)	$3x^2(5x + y)$	M1	for $3(5x^3 + x^2y)$ **or** $x(15x^2 + 3xy)$ **or** $3x(5x^2 + xy)$ **or** $x^2(15x + 3y)$ **or** $3x^2(ax + by)$	Where $a \geq 1$ and $b \geq 1$
		A1	cao	

June 2020 Paper 3

Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	n^8	B1	cao	
(b)	cd^3	M1	for partial simplification, eg c or d^3	May be seen as simplification in original fraction
		A1	for cd^3	Accept c^1d^3
(c)	$x > \frac{14}{5}$	M1	for $5x > 14$ or $5x = 14$ or critical value, $\frac{14}{5}$ oe	Must see carried out correctly, ie at least $5x > 7 \times 2$ not just intention seen. Allow other signs for this mark.
		A1	$x > \frac{14}{5}$ or $x > 2\frac{4}{5}$ or $x > 2.8$	

Question	Answer	Mark	Mark scheme	Additional guidance
25 (a)	$14x^5y^6$	B2	cao	
		(B1	for correct simplification of two terms ax^5y^6 **or** $14x^by^6$ **or** $14x^5y^c$ where $a \neq 14$, $b \neq 5$, $c \neq 6$)	Where a, x^b, y^c can be made up of two products Condone inclusion of multiplication signs for B1
(b)	m^{-6}	B1	for m^{-6} or $\frac{1}{m^6}$	

Question	Answer	Mark	Mark scheme	Additional guidance
29	16	M1	for simplifying using a correct rule of indices as a first step eg $4^{9-6}(=\ 4^3$ oe) or 4^{-6-1} $(=\ 4^{-7}$ oe) or 4^{9-1} $(=\ 4^8$ oe) **or** $\frac{4\times4\times4\times4\times4\times4\times4\times4\times4}{4\times4\times4\times4\times4\times4\ \times\ 4}$ **or** 4^2	
		A1	cao	

June 2020 Paper 1

Question	Answer	Mark	Mark scheme	Additional guidance
30 (a)	$q = \frac{p-7}{6}$	M1	for a correct first step, showing a method of subtraction of 7 from both sides or division of all terms by 6 eg $p - 7 = 6q + 7 - 7$ **or** $\frac{p}{6} = \frac{6q}{6} + \frac{7}{6}$ oe	
		A1	for $q = \frac{p-7}{6}$ **or** $q = \frac{p}{6} - \frac{7}{6}$	Allow $1\frac{1}{6}$ for $\frac{7}{6}$ Award for answer without "$q =$"
(b)	m^6	B1	cao	