1	(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 $x > 2.8$	

2	16	M1	for working with square root **or** with reciprocal in $\left(5\frac{4}{9}\right)^{-\frac{1}{2}}$ eg $\left(\frac{9}{49}\right)^{\frac{1}{2}}$ or $\frac{1}{\sqrt{\frac{49}{9}}}$ or $\frac{1}{\left(\frac{49}{9}\right)^{\frac{1}{2}}}$ or $\left(\frac{7}{3}\right)^{-1}$ or $\frac{3}{7}$	
		M1	for a full method to simplify the numerator eg $\frac{3}{7} \times \frac{14}{3}$ (= 2)	
		M1	for showing $\div 2^{-3}$ as $\times 8$, eg $\frac{3}{7} \times \frac{14}{3} \times 8$ **or** for $2^1 \div 2^{-3}$ (= 2^4) **or** for correctly reducing the expression to a single calculation, eg $\frac{336}{21}$ or $\frac{112}{7}$ or $2 \div \frac{1}{8}$	May be seen at any time during the calculation
		A1	cao	Award 0 marks for a correct answer with no supportive working

3	(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	

4	(a)	10^{60}	M1	for a correct first step using one of the rules of indices, eg. $10^{150} \times 10^{90} = 10^{240}$ or $10^{360} \div 10^{150} = 10^{210}$ or $10^{360} \div 10^{90} = 10^{270}$ or $\sqrt{10^{360}} = 10^{180}$ or $\sqrt{10^{150}} = 10^{75}$ or $\sqrt{10^{90}} = 10^{45}$	
			M1	for correct use of rules of indices leading as far as $\sqrt{10^{120}}$ or $\frac{10^{180}}{10^{120}}$	
			A1	cao	
	(b)	reason	C1	for correct reasoning **Acceptable examples** eg should do 50×2 (not 50^2) because $(12^{50})^2 = 12^{100}$ because when you have a power inside and outside the bracket you times them because $(a^b)^c = a^{bc}$ (not a^{bc}) **Not acceptable examples** because you need to multiply everything in the brackets by 2 because he should have squared 12 as well you add the powers instead of timesing	

5	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.	

6		$\frac{16}{81}$	M1	for showing the cube root of 8 = 2 **and** the cube root of 27 = 3 **or** an intention to find the cube root and raise to power 4 eg $\sqrt[3]{\left(\frac{8}{27}\right)^4}$ or $\left(\sqrt[3]{\frac{8}{27}}\right)^4$ or $\left(\frac{2}{3}\right)^4$	
			A1 2	cao	

7	(a)	$81x^{20}y^{24}$	B2	cao	
			(B1	for two of 81, x^{20}, y^{24})	
	(b)	$x^3+3x^2-10x-24$	M1	for method to find the product of any two linear expressions (3 out of 4 terms correct or 4 correct terms ignoring signs), eg $x^2+2x-3x-6$ or $x^2+2x+4x+8$ or $x^2+4x-3x-12$	Note that, for example $-x-6$ in expansion of $(x+2)(x-3)$ is regarded as 3 correct terms.
			M1	for a complete method to find all terms, at least half of which are correct (ft their first product), eg $x^3+4x^2+2x^2-3x^2+8x-6x-12x-24$	First product must be quadratic with at least 3 terms but need not be simplified or may be simplified incorrectly
			A1	cao	