1	c	eg $12\times\frac{4x-2}{3}-12\times\frac{5-3x}{4}=12\times6$ **or** eg $4(4x-2)-3(5-3x)=12\times6$ **or** eg $\frac{4(4x-2)}{12}-\frac{3(5-3x)}{12}(=6)$ **or** eg $\frac{4(4x-2)-3(5-3x)}{12}(=6)$ oe			M1	for clear intention to multiply **all** terms by 12 or a multiple of 12 **or** to express LHS as two fractions over 12 or a multiple of 12 or as a single fraction with a denominator of 12 or a multiple of 12 (if expanded numerator, allow one sign error)
		eg $16x-8-15+9x=6\times12$			M1	expanding brackets and multiplying both sides by denominator with no more than one sign error
		eg $16x+9x=72+8+15$			M1	for correct rearrangement of a correct equation with terms in x isolated
			3.8	4	A1	oe, award full marks for a correct answer if at least M1 scored

2	(d)	E.g. $6x-15$ or $12x-30$ oe		4	M1 for expansion of a correct bracket
		$2\times3(2x-5)=9-x$ oe **or** $2(\text{'}6x-15\text{'})=9-x$ oe **or** $3(2x-5)=\frac{9}{2}-\frac{x}{2}$ oe			M1 for removal of fraction or separating fraction (RHS) in an equation
		$12x+x=9+30$ oe **or** $6x+\frac{x}{2}=\frac{9}{2}+15$ oe			M1 ft (dep on 4 terms) for terms in x on one side of equation; number terms on the other
			3		A1 dep on at least M2 awarded

3	(c)	$w^2\times w^n=w^{10}$ **or** $w^5\times w^n=w^{13}$ **or** $w^5\times w^{n-3}=w^{10}$ **or** $\frac{w^{5+n}}{w^3}=w^{10}$ oe **or** $5+n-3=10$ **or** $2+n=10$ **or** $5+n=13$		2	M1	A correct first stage simplifying at least one index in a correct equation **or** a clearly correct subsequent stage showing correct use of a rule of indices eg $w^5\times w^n=w^{30}$ **and** $w^n=w^{30-5}$ **or** a correct equation using indices only
		Working not required, so correct answer scores full marks (unless from obvious incorrect working)	8		A1	accept w^8 (trial and error gains full marks if correct and no marks if incorrect unless a rule of indices is clearly shown)

4	c	$(4^{k+3} =)(2^2)^{k+3}$ oe **or** $(16=)2^4$ $(16=)4^2$ **or** $(2^k=)\left(4^{\frac{1}{2}}\right)^k$ oe $(4^{k+3}=)\left(16^{\frac{1}{4}}\right)^{k+3}$ oe **or** $(2^k=)\left(16^{\frac{1}{4}}\right)^k$ oe		4	M1	for $(2^2)^{k+3}$ oe **or** 2^4 **or** 4^2 **or** $\left(4^{\frac{1}{2}}\right)^k$ oe **or** $\left(16^{\frac{1}{4}}\right)^{k+3}$ oe **or** $\left(16^{\frac{1}{4}}\right)^k$ oe
		$(4^{k+3} =)(2^2)^{k+3}$ oe **and** $(16=)2^4$ $(16=)4^2$ **and** $(2^k=)\left(4^{\frac{1}{2}}\right)^k$ oe $(4^{k+3}=)\left(16^{\frac{1}{4}}\right)^{k+3}$ oe **and** $(2^k=)\left(16^{\frac{1}{4}}\right)^k$ oe			M1	for $(2^2)^{k+3}$ oe **and** 2^4 **or** 4^2 **and** $\left(4^{\frac{1}{2}}\right)^k$ oe **or** $\left(16^{\frac{1}{4}}\right)^{k+3}$ oe **and** $\left(16^{\frac{1}{4}}\right)^k$ oe
		E.g. $2k+6=4+k$ **or** $k+3=2+\frac{1}{2}k$ **or** $\frac{1}{2}(k+3)=1+\frac{1}{4}k$			M1	for a correct linear equation in k
			−2		A1	dep on at least M2

5	(b)	eg $y^5 \times y^n = y^{19}$ or $y^{-1} \times y^n = y^{13}$ or $5 + n - 6 = 13$	14	2	M1	Use of 1 rule of indices or a correct linear equation in n
					A1	Accept y^{14}