11	(a)	$2^{\frac{1}{2}} \times 2^4$ **or** eg $2 \times (2^4)^2 = (2^x)^2$ or $2^9 = 2^{2x}$		2	M1	for a correct expression in powers of 2 that is equivalent to 2^x eg $2^{\frac{1}{2}} \times 2^4$ **or** for showing $\sqrt{2} = 2^{\frac{1}{2}}$ **and** $16 = 2^4$ **or** for writing the equation in powers of 2 eg $2 \times (2^4)^2 = (2^x)^2$ or $2^9 = 2^{2x}$
		Working required	$\frac{9}{2}$		A1	**or** 4.5 **or** 4½ dependent on M1
	(b)	$\frac{11^{-30}}{11^4}$ **or** $-30 - 4 = n$ **or** $-30 = n + 4$ oe		2	M1	For $(11^{-6})^5$ written as 11^{-30} in the equation or $(11^{-6})^5 = 11^{-30}$ shown in working **or** a correct equation with indices only (no marks for $3.914....\times 10^{-36}$)
		Working required	−34		A1	dep on M1 (as we have asked for working)
						Total 4 marks

12		$\frac{50}{360} \times \pi \times 7 \times 2$ oe eg $\frac{14\pi}{36} \times 5$ **or** "43.98…"÷ 360 × 50 oe		2	M1	Students may use π or 3.14, 3.142 or $\frac{22}{7}$
		Working not required, so correct answer scores full marks (unless from obvious incorrect working)	6.1		A1	Accept answers in the range 6.05 – 6.2
						Total 2 marks