

1	$16x^4$	B1	
---	---------	----	--

Question	Answer	Mark	Comments
2	a^{15}	B1	

Question	Answer	Mark	Comments
3	$1\frac{24}{25}$	B3	oe mixed number B2 $\frac{49}{25}$ B1 $\left(\frac{7}{5}\right)^2$ or $\frac{1}{\left(\frac{5}{7}\right)^2}$ or $\left(\frac{1}{5/7}\right)^2$ or $\frac{1}{25/49}$ or $\left(\frac{25}{49}\right)^{-1}$ or $\frac{1}{5^2} \div \frac{1}{7^2}$
			Additional Guidance
			For B2 or B1 allow equivalent fractions or decimals eg 1.96 for $\frac{49}{25}$
			B2

Q	Answer	Mark	Comments
4	w	B1	

Q	Answer	Mark	Comments
5(a)	(2, 256)	B1	

Q	Answer	Mark	Comment
6	8^{-5}	B1	

Q	Answer	Mark	Comments
7	$3^{11} (: 3^7)$ or $3^6 : 3^2$ or $3^5 : 3^{(1)}$ or $\frac{a}{3^7}$ or 177 147 : 2187	M1	oe eg 729 : 9 or 243 : 3 3^n may be implied by a multiplication string of n 3s a can be any value other than 3^7
	$\frac{3^{11}}{3^7} (: 1)$ or $\frac{3^6}{3^2} (: 1)$ or $3^6 \times 3^{-2} (: 1)$ or $\frac{3^5}{3^{(1)}} (: 1)$ or $3^{-1} \times 3^5 (: 1)$ or $3^4 (: 1)$ or $\frac{177\ 147}{2187} (: 1)$	M1dep	oe left-hand side with one or two components eg $\frac{729}{9} : 1$ or $243 \times \frac{1}{3} : 1$ allow $(: 1)$ to be $(: 3^0)$ 3^n may be implied by a multiplication string of n 3s
	81 : 1	A1	
	Additional Guidance		
	$\frac{3^6 \times 3^5}{3^7} (: 1)$ with no further work		M1M0A0
	81 : 1 or $3^4 (: 1)$ could be seen from incorrect working eg $\frac{9^{11}}{3^7} = 3^4$ Answer 81 : 1		M1M0A0

Q	Answer	Mark	Comment
8(a)	$\left(\frac{4}{5}\right)^2$ or $\frac{4^2}{5^2}$ or $\left(\frac{25}{16}\right)^{-1}$ or $\frac{1}{\left(\frac{5}{4}\right)^2}$ or $\frac{1}{5^2/4^2}$ or $\left(\frac{1}{5/4}\right)^2$ or $\frac{1}{25/16}$ or $\frac{1/25}{1/16}$	M1	missing brackets must be recovered accept a correct decimal or mixed number for any fraction eg $\frac{1}{1.25^2}$
	$\frac{16}{25}$	A1	oe fraction or decimal
	Additional Guidance		
	Ignore any attempt to convert a correct fraction into a decimal		M1A1

Q	Answer	Mark	Comment
8(b)	$\left(\sqrt{\frac{9}{100}}\right)^3$ or $\frac{3^3}{10^3}$ or $\left(\frac{3}{10}\right)^3$ or $\sqrt{\frac{9^3}{100^3}}$ or $\sqrt{\left(\frac{9}{100}\right)^3}$ or $\frac{(\sqrt{9})^3}{(\sqrt{100})^3}$ or or $\sqrt{\frac{729}{1000\ 000}}$ or $\frac{\sqrt{729}}{\sqrt{1000\ 000}}$	M1	oe with 0.09 for $\frac{9}{100}$ or 0.3 for $\frac{3}{10}$ or 3^2 for 9 or 10^2 for 100 missing brackets must be recovered
	$\frac{27}{1000}$ or 0.027	A1	
	Additional Guidance		
	Ignore any attempt to convert a correct fraction into a decimal		M1A1
	For M1 do not allow power $\frac{1}{2}$ with no square root		