

Indices Mark Scheme		
1(a)	$x^2 \times x^8 = x^{(2+8)} = x^{10}$	[1]
1(b)	$a^2 \div a^8 = a^{(2-8)} = a^{-6}$	[1]
1(c)	$(y^2)^8 = y^{2 \times 8} = y^{16}$	[1]
2(a)	$(4x)^{-2} = \frac{1}{(4x)^2} = \frac{1}{16x^2}$	[1]
2(b)	$8^{\frac{2}{3}} = (\sqrt[3]{8})^2 = (2)^2 = 4$	[1]
2(c)	$4^{-\frac{3}{2}} = \frac{1}{(\sqrt{4})^3} = \frac{1}{8}$	[1]
2(d)	$\sqrt{81^{\frac{1}{2}} \times 2^4} = \sqrt{9 \times 16}$	[1] – Correct simplifying $\sqrt{9 \times 16}$
	$= \sqrt{144} = 12$	[1] – Correct answer
3	$\frac{5^2 \times 5^{-4}}{5^3} = \frac{5^{2+(-4)}}{5^3}$	[1] – Simplifying
	$= 5^{(-2-3)} = 5^{-5}$ or $\frac{1}{5^5}$ or $\frac{1}{3125}$	[1] – Answer
4	$\frac{10x^{2+4}y^{3+(-2)}}{10x^6y}$	[1] – Simplifying
	$= \frac{10x^6y}{10x^6y} = 1$	[1] – Answer
5	$\frac{25^5}{5^3} = \frac{(5^2)^5}{5^3}$	[1] – Simplifying
	$= \frac{5^{10}}{5^3} = 5^7$	[1] – Answer
6(a)	9	[1]
6(b)	8	[1]
6(c)	512	[1]

Turn over ►

7(a)	$\sqrt[3]{y} = y^{\frac{1}{3}}$	[1]
7(b)	$\frac{1}{y\sqrt{y}} = (y\sqrt{y})^{-1}$	[1] – Correct bracket
	$= (\sqrt{y^2y})^{-1}$	[1] – Correct use of square root
	$= (y^3)^{-\frac{1}{2}} = y^{-\frac{3}{2}}$	[1] – Answer
7(c)	$\sqrt{2\frac{1}{4}} = \sqrt{\frac{9}{4}} = \frac{\sqrt{9}}{\sqrt{4}}$	[1] – Fraction and roots correctly applied
	$= \frac{3}{2} = 1.5$	[1] – Answer

END