Question Number	Scheme	Marks
1.	$\int \frac{2}{3}x^3 - \frac{1}{2x^3} + 5\,\mathrm{d}x = \frac{2}{3}\times\frac{x^4}{4} - \frac{1}{2}\times\frac{x^{-2}}{-2} + 5x + c$	M1 A1
	$= \frac{1}{6}x^4 + \frac{1}{4}x^{-2} + 5x + c$	A1 A1 **(4 marks)**

M1 For raising any power by 1 eg. $x^3 \to x^4$, $x^{-3} \to x^{-2}$, $5 \to 5x$ or eg. $x^3 \to x^{3+1}$

A1 For two of $\frac{2}{3}\times\frac{x^4}{4}$, $-\frac{1}{2}\times\frac{x^{-2}}{-2}$, $+5x$ correct (un-simplified) . Accept $5x^1$

This may be implied by a correct simplified answer

A1 For two of $\frac{1}{6}x^4$, $+\frac{1}{4}x^{-2}$, $+5x$ correct and in simplest form. Accept forms such as $\frac{x^4}{6}$, $\frac{1}{4x^2}$,

CONDONE $+\frac{0.25}{x^2}$ but NOT $\frac{1/4}{x^2}$, $\frac{5x}{1}$, $-\left(-\frac{1}{4}x^{-2}\right)$

A1 Fully correct and simplified with $+c$ all on one line. Accept simplified equivalents (see above) and ignore any spurious notation. ISW after a correct simplified answer is achieved.

A common mistake is writing $-\frac{1}{2x^3} = -2x^{-3} \to -x^{-2}$ this can still get the method mark for increasing the power by 1.

Question Number	Scheme	Marks
2.	Attempts both sides as powers of 3 $\dfrac{3^x}{3^{4y}} = 3^3 \times 3^{0.5} \Rightarrow 3^{x-4y} = 3^{"3.5"}$	M1
	Sets powers equal and attempts to makes y the subject : $x - 4y = "3.5" \Rightarrow y = ...$	dM1
	$y = \dfrac{1}{4}x - \dfrac{7}{8}$	A1
		(3) **(3 marks)**
Alt1	Multiplies by 3^{4y} first:	
	Attempts both sides as powers of 3 (Addition law on RHS) $3^x = 27\sqrt{3} \times 3^{4y} \Rightarrow 3^x = 3^{"3.5"+4y}$	M1
	Sets powers equal and makes y the subject $x = "3.5" + 4y \Rightarrow y = ...$	dM1
	$y = \dfrac{1}{4}x - \dfrac{7}{8}$	A1
Alt2	Divides by $27\sqrt{3}$ first:	
	Attempts both sides as powers of 3 $\dfrac{3^x}{3^{4y} \times 27\sqrt{3}} = 1 \Rightarrow 3^{x-4y-"3.5"} = 3^0$	M1
	(Subtraction law on LHS)	
	Sets powers equal and makes y the subject $x - "3.5" - 4y = 0 \Rightarrow y = ...$	dM1
	$y = \dfrac{1}{4}x - \dfrac{7}{8}$	A1
Alt3	Takes logs of both sides	
	Eg Base 3: $\log_3\left(\dfrac{3^x}{3^{4y}}\right) = \log_3\left(27\sqrt{3}\right)$	
	$\log_3 3^x - \log_3 3^{4y} = \log_3 27\sqrt{3}$	M1
	$x - 4y = 3.5 \Rightarrow y = ...$	dM1
	$y = \dfrac{1}{4}x - \dfrac{7}{8}$	A1