

Question	Scheme		Marks	AOs
12(a)	$2^{2x} + 2^4$ is wrong in line 2 - it should be $2^{2x} \times 2^4$		B1	2.3
	In line 4, $2^4$ has been replaced by 8 instead of by 16		B1	2.3
			(2)	
(b)	<p><b>Way 1:</b></p> $2^{2x+4} - 9(2^x) = 0$ $2^{2x} \times 2^4 - 9(2^x) = 0$ <p>Let <math>2^x = y</math></p> $16y^2 - 9y = 0$	<p><b>Way 2:</b></p> $(2x + 4)\log 2 - \log 9 - x \log 2 = 0$	M1	2.1
	$y = \frac{9}{16}$ or $y = 0$ So $x = \log_2\left(\frac{9}{16}\right)$ or $\frac{\log\left(\frac{9}{16}\right)}{\log 2}$ o.e. with no second answer	$x = \frac{\log 9}{\log 2} - 4$ o.e.	A1	1.1b
			(2)	

(4 marks)

**Notes:**

(a)

**B1:** Lists error in line 2 (as above)

**B1:** Lists error in line 4 (as above)

(b)

**M1:** Correct work with powers reaching this equation

**A1:** Correct answer here – there are many exact equivalents