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

M1 Attempts to use the subtraction law on the LHS and the addition law on the RHS to achieve a form of $3^{\cdots} = 3^{\cdots}$

Condone errors writing $27\sqrt{3}$ as a single power of 3 but it must be clear what the two indices are before adding if they make an error ($27 = 3^a$ and $\sqrt{3} = 3^b$ so $27\sqrt{3} = 3^{a+b}$)
A common mistake is to write $27\sqrt{3} \Rightarrow \sqrt{9} \times \sqrt{3} \times \sqrt{3} = 3^2$ which can be condoned and they can still get M1M1A0.

They may rearrange the equation first so look for attempts at the appropriate index laws being applied (see alternatives). In Alt2 allow the RHS=1.

They may use logs on both sides (the most likely would be base 3 - see Alt3) To score M1 they would need to take logs and then apply the laws of logs to either add or subtract.

dM1 Dependent upon the previous M mark, it is for an attempt to make *y* the subject. For this mark follow through their power for $27\sqrt{3}$ but they must have 3 terms in their equation relating to the powers and they cannot "lose" one in the rearrangement. (i.e $ax + by + c = 0$ oe where $a,b,c \neq 0$) Do not award this mark if they rearrange to make *x* the subject. Condone sign slips only.

A1 $y = \frac{1}{4}x - \frac{7}{8}$ or exact simplified equivalent eg $y = \frac{2x-7}{8}$, $y = 0.25x - 0.875$

DO NOT ACCEPT $y = \frac{x - \frac{7}{2}}{4}$ or $y = \frac{x - 3.5}{4}$

Question Number	Scheme	Marks
3.(a)	Attempts to make y the subject	M1
	States $-\frac{3}{5}$ or exact equivalent	A1
		(2)
(b)	Uses perpendicular gradients rule $\Rightarrow$ gradient $l_2 = \frac{5}{3}$	M1
	Forms equation of l_2 using (6,-2) $\quad y+2="\frac{5}{3}"(x-6)$	M1
	$y=\frac{5}{3}x-12$	A1
		(3) **(5 marks)**
Alt1(a)	Eg Coordinates of two points on the line $(0,1.4)$ and $(1,0.8)$	
	Gradient $=\frac{0.8-1.4}{1-0}$	M1
	Gradient $=-0.6$	A1

(a)

M1 For an attempt to rearrange $3x+5y-7=0$ and make y the subject.

Expect to see $\pm 5y=...$ followed by $y=...$ or equivalent. $\frac{3}{5}$ on its own is M0.

Alternatively they may find two pairs of coordinates and find the gradient between those two points.

Allow one slip in calculating the coordinates and it must be clear that they are attempting $\frac{y_2-y_1}{x_2-x_1}$

A1 For stating $-\frac{3}{5}$ or exact equivalent in (a). A correct answer implies both marks and isw after a correct gradient is stated.. (The value of c does not need to be correct).

Do not allow $y=-\frac{3}{5}x+\frac{7}{5}$ without some statement for 'm'. Do not allow $-\frac{3}{5}x$.