Question	Answer	Marks	Guidance
1	$3y-(-5y-4)y=6$ oe or $3\left(\frac{-4-x}{5}\right)-x\left(\frac{-4-x}{5}\right)=6$ or $x+5\left(\frac{6}{3-x}\right)=-4$ oe	**M1**	
	$5y^2+7y-6=0$ or $x^2+x-42=0$	**A1**	
	Factorises *their* 3-term quadratic expression or solves *their* 3-term quadratic equation, e.g. $(5y-3)(y+2)$ [= 0] or $(x-6)(x+7)$ [= 0]	**M1**	
	$x = 6,\quad y = -2$ $x = -7,\ y = 0.6$	**A2**	**A1** for either $x = 6,\quad x = -7$ or $y = -2,\ y = 0.6$ or for an x, y pair from a correct factorisation or correct solving of a correct equation. The method of solution **must** be seen in this case.
2	$e^{2x-3-(5-x)}=\frac{7}{4}$ oe or $e^{5-x-(2x-3)}=\frac{4}{7}$ oe	**M1**	
	$e^{3x-8}=\frac{7}{4}$ oe, soi or $e^{8-3x}=\frac{4}{7}$ oe, soi	**A1**	
	$3x-8=\ln\frac{7}{4}$ oe or $8-3x=\ln\frac{4}{7}$ oe	**M1**	**FT** expression of similar structure which has at most one sign or arithmetic slip
	$x=\frac{\ln 1.75+8}{3}$ oe or $x=\frac{8-\ln\frac{4}{7}}{3}$ oe or 2.85[32…] rot to 3 or more sf	**A1**	

Question	Answer	Marks	Guidance
2	**Alternative method**		
	$\ln 4 + \ln e^{2x-3} = \ln 7 + \ln e^{5-x}$ oe, soi	**(M1)**	
	$\ln 4 + 2x - 3 = \ln 7 + 5 - x$ oe	**(A1)**	
	$2x + x = \ln 7 + 5 - \ln 4 + 3$ or $3x - 8 = \ln \frac{7}{4}$ oe or $8 - 3x = \ln \frac{4}{7}$ oe	**(M1)**	**FT** expression of similar structure which has at most one sign or arithmetic slip
	$x = \frac{\ln 7 - \ln 4 + 8}{3}$ oe or 2.85[32…] rot to 3 or more sf	**(A1)**	
3	$\left[m_{\text{tangent}} =\right] -ax^{-2} + 3$ oe	**B1**	
	[When $x = 1$, m_{normal} =] $\frac{-1}{3-a}$ oe or gradient of tangent = 4 soi	**B1**	**FT** $\frac{-1}{their \left.\frac{dy}{dx}\right\|_{x=1}}$ if appropriate
	$\frac{-1}{their(3-a)} = -\frac{1}{4}$ oe or *their* $(3 - a) = 4$ oe	**M1**	**FT** $\frac{-1}{their \left.\frac{dy}{dx}\right\|_{x=1}}$ or *their* $\left.\frac{dy}{dx}\right\|_{x=1}$ and *their* evaluation of $\frac{-1}{-\frac{1}{4}}$
	$a = -1$ nfww	**A1**	
	[When $x = 1$] *their* $0 = -\frac{1}{4}[1] + b$ oe	**M1**	**FT** $y =$ **(***their a***)** + 1 providing at least 2 of the first 3 marks awarded
	$b = \frac{1}{4}$ nfww	**A1**	