

b) iii) $2\log(5x+3) = \log(x+1) + \log(x+2)$

$$\log(5x+3)^2 = \log(x+1)(x+2)$$

$$(5x+3)^2 = (x+1)(x+2)$$

$$25x^2 + 15x + 15x + 9 = x^2 + 2x + x + 2$$

$$24x^2 + 27x + 7 = 0$$

$$a = 24$$

$$b = 27$$

$$c = 7$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{-(27) \pm \sqrt{(27)^2 - 4(24)(7)}}{2(24)}$$

$$= \frac{-27 \pm \sqrt{57}}{48}$$

$$\therefore \boxed{\begin{matrix} x = -0.41 \\ x = -0.72 \end{matrix}}$$

iv) $7^x \times 3^{x+2} = 5^{x-1}$

~~log~~ $\log 7^x \times \log 3^{x+2} = \log 5^{x-1}$

$$x \log 7 + (x+2) \log 3 = (x-1) \log 5$$

$$(x)(0.85) + (x+2)(0.48) = (x-1)(0.70)$$

$$0.85x + 0.48x + 0.96 = 0.70x - 2.8$$

$$1.33x + 0.96 = 0.70x - 2.8$$

$$0.63x = 1.84$$

$$\underline{\underline{x = 2.92}}$$

c) i) ~~$21R^2 + 24R + 5$~~
 ~~$(3x+1)(9x+5)$~~ - ?

ii) $27R^2 + 24R + 5$
 $(3x+1)(9x+5)$

ii) $81Q^2 - 144U^2$
 $9(9Q^2 - 16U^2)$
 $9(3x-4y)(3x+4y)$

iii) $tr \bar{4} + y + ur - uy$
 $r - y(t + u)$