

$$\text{iii)} \quad 2 \log(5x+3) = \log(x+1) + \log(x+2)$$

$$\frac{(5x+3)^2}{25x^2+30x+9} = \frac{(x+1)(x+2)}{x^2+3x+2}$$

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

$$\frac{-27x \pm \sqrt{27^2 - 4 \times 24 \times 7}}{2 \times 24}$$

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

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

$$x \ln(21) + \ln(3^2) = (x-1) \times \ln(5)$$

$$x \ln(21) + \ln(3^2) = x \ln(5) - \ln(5)$$

$$x (\ln(21) - \ln(5)) \times \ln(3^2) = \ln(5)$$

$$x = \frac{\ln(5)}{\ln(21) - \ln(5)}$$

$$\text{c)} \quad 2R^2 + 27R + 5$$

$$\text{i)} \quad 3R(7R+8) + 5$$

$$\text{ii)} \quad 81Q^2 - 144U^2$$

$$\cancel{9R^2 - 12R}$$

$$9Q - 12U(12Q + 12U)$$

$$\text{iii)} \quad tr - ty + ur - uy$$

$$t(r-y) + u(r-y)$$