

$$\text{iii)} \quad 3^{x+5} = 2^{\frac{x}{3}} \times 6$$

$$\log 3^{(x+5)} = \log 2^{\frac{x}{3}} \times 6$$

$$(x+5) \log 3 = x \log 2 + \log 6$$

$$(x+5) 0.47 = 0.30x + 0.78$$

$$0.47x + 2.35 = 0.30x + 0.78$$

$$0.47x - 0.30x = 0.78 - 2.35$$

$$0.17x = -1.57$$

$$x = \frac{-1.57}{0.17}$$

$$x = -9.24$$

b)

$$y = x^2 + 2x + 2 \quad \textcircled{1}$$

$$y = 2x^2 + 11x + 10 \quad \textcircled{2}$$

$$\textcircled{2} - \textcircled{1} \quad 0 = x^2 + 9x + 8$$

$$0 = (x+1)(x+8)$$

1x8
8x1
2x4
4x2

$$(2x+1)(x+8) = 0$$

$$2x^2 + 16x + x + 8 = 0$$

$$(2x+8)(x+1) = 0$$

$$2x^2 + 2x + 8x + 8 = 0$$

$$(2x+4)(x+2) = 0$$

$$2x^2 + 4x + 4x + 8 = 0$$

$$(2x+2)(x+4) = 0$$

$$2x^2 + 8x + 2x + 8 = 0$$

$$(x+1)(x+8) = 0$$

$$x^2 + 8x + 1x + 8 = 0$$

$$(x+8)(x+1) = 0$$

$$x^2 + 1x + 8x + 8 = 0$$