

Adam Evans 2005959

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$$\text{iii)} \quad 3^{x+5} = 2^x \times 6 \quad \leftarrow \log A^B = B \log A + 1^{\text{st}}$$

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

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

$$(x+5) 0.4771 = 0.3010x + 0.7781$$

$$0.4771x + 2.3856 = 0.3010x + 0.7781$$

$$0.4771x - 0.3010x = 0.7781 - 2.3856$$

$$0.1761x = -1.6079$$

$$x = \frac{-1.6079}{0.1761} = \boxed{x = -9.1306}$$

$$\begin{aligned} 6) \quad y &= x^2 + 2x + 2 & \textcircled{1} \\ y &= 2x^2 + 11x + 10 & \textcircled{2} \end{aligned}$$