

Q5)

i)  $5^{x+2} = 2^x$

$$\log 5^{x+2} = \log 2^x$$

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

$$(x+2) 0.699 = 0.301x$$

$$0.699x + 1.398 = 0.301x$$

$$0.699x - 0.301x = -1.398$$

$$0.398x = -1.398$$

$$x = \frac{-1.398}{0.398}$$

$$x = -0.35$$

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ii)  $\log(x+2) + \log(x+3) = 2 \log(x+1)$

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

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

$$x^2 + 5x + 6 = x^2 + 2x + 1$$

$$7x + 6 = 2x + 1$$

$$7x - 2x = 1 - 6$$

$$5x = -5$$

$$x = \frac{-5}{5}$$