

/5/2021

2001090

ACHA4006

Calum Campbell

Further maths

4)

$$p = \sqrt{\frac{xy}{T}} + 3$$

$$p^2 = \frac{xy}{T} + 3$$

$$p^2 T = xy + 3$$

$$p^2 T - 3 = xy$$

$$x = \frac{p^2 T - 3}{y}$$

5)

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

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

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

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

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

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

$$= (x^2 + 3x + 2x + 6) = (x^2 + 2x + 1)$$

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

$$= 3x + 6 = 1$$

$$= 3x = 1 - 6$$

$$= 3x = -5$$

$$x = \frac{-5}{3}$$

$$x = -1.6\bar{6}$$