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i) a)

$$\frac{3x-1}{5} = \frac{6x+5}{9}$$

$$9(3x-1) = 5(6x+5)$$

$$27x - 9 = 30x + 25$$

$$27x - 30x = 9 + 25$$

$$-3x = 34$$

$$x = \frac{34}{-3}$$

$$x = -11.3$$

ii)

$$1 + \frac{5}{x} = \frac{-6}{x^2}$$

$$1 + 5(x^2) = x(-6)$$

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

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

$$11x^2 = 1$$

$$x^2 = \frac{11}{1}$$

$$x^2 = 11$$

$$x = \sqrt{11}$$

$$x = 3.3$$

$$\text{iii} \quad 2\log(3x+1) = \log(x+3) + \log(x+7)$$

$$\log(3x+1)^2 = (x+3)(x+7)$$

$$(3x+1)(3x+1) = (x+3)(x+7)$$

$$9x^2 + 6x + 1 = x^2 + 10x + 21$$

$$9x^2 + 6x + 1 - x^2 - 10x - 21 = 0$$

$$8x^2 - 4x - 20 = 0$$

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