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ACHA4000/ACMA4006

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Analytical Methods

Exam

Question 1

$$a) V_{min} = \sqrt{\frac{W \times 2 \times 1}{S \times p \times C_L}}$$

~~sub in values~~

~~$$200 = \sqrt{\frac{490332 \times 2 \times 1}{S \times 0.41 \times 0.52}}$$~~

$$V_{min}^2 = \frac{W \times 2 \times 1}{S \times p \times C_L}$$

$$V_{min}^2 S = \frac{W \times 2 \times 1}{p \times C_L}$$

$$S = \left(\frac{W \times 2 \times 1}{p \times C_L \times V_{min}^2} \right)$$

Sub in

$$S = \left(\frac{490332 \times 2 \times 1}{0.41 \times 0.52 \times 200^2} \right)$$

$$S = 114.993 m^2$$

$$b) i) \frac{8x-3}{5} = \frac{-5x+6}{-3}$$

$$-3(8x-3) = 5(-5x+6)$$

$$-24x+9 = -25x+30$$

$$-24x+25x = 30-9$$

$$x = 21$$

$$(ii) \frac{(4x-1)}{3} - \frac{x}{4} = \frac{(4x+3)}{2}$$

$$12 \frac{(4x-1)}{3} - \frac{12x}{4} = \frac{12(4x+3)}{2}$$

$$4(4x-1) - 3x = 6(4x+3)$$

$$16x-4-3x = 24x+18$$

$$13x-4 = 24x+18$$

~~$$24 \times 12 = 24$$~~

$$CF = 24 \times 12$$