

TC 2.4

$$\triangle x \neq 1; x \neq \frac{3}{2}$$

MR

$$a) \frac{(2-5x)(x-1) \cdot 4}{(2x-3)(x-1) \cdot 4} - \frac{3(2x-3)(x-1)}{(2x-3)(x-1) \cdot 4} - \frac{4(2x-3)}{(2x-3)(x-1) \cdot 4} = 0$$

$$\Leftrightarrow (2-5x)(x-1) \cdot 4 - 3(2x-3)(x-1) - 4(2x-3) = 0$$

$$\Leftrightarrow (x-1)(8-20x-6x+9) - 8x+12 = 0$$

$$\Leftrightarrow (x-1)(17-26x) - 8x+12 = 0$$

$$\Leftrightarrow \cancel{17x} - 26x^2 - 17 + 26x - 8x + 12 = 0$$

$$\Leftrightarrow -26x^2 + 35x - 5 = 0 \quad x = \frac{35 \pm \sqrt{705}}{52}$$

$$\Leftrightarrow x \approx 0,1625; x \approx 1,18369$$

$$b) p = \frac{F_1}{S_1}; p = \frac{F_2}{S_2} \Rightarrow \frac{F_1}{S_1} = \frac{F_2}{S_2}$$

$$F_1 = m_1 \cdot g; F_2 = m_2 \cdot g \Rightarrow \frac{m_1 \cdot g}{S_1} = \frac{m_2 \cdot g}{S_2}$$

$$\Rightarrow m_1 = S_1 \frac{m_2}{S_2} = m_2 \frac{S_1}{S_2}$$

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$$c) C = 4\pi \varepsilon \cdot \frac{1}{\frac{1}{R_1} - \frac{1}{R_2}} \Leftrightarrow \frac{C}{4\pi \varepsilon} = \frac{1}{\frac{1}{R_1} - \frac{1}{R_2}}$$

$$\Leftrightarrow \frac{4\pi \varepsilon}{C} = \frac{1}{R_1} - \frac{1}{R_2} \Leftrightarrow \frac{1}{R_2} = \frac{1}{R_1} - \frac{4\pi \varepsilon}{C}$$

$$\Leftrightarrow R_2 = \frac{1}{\frac{1}{R_1} - \frac{4\pi \varepsilon}{C}}$$

$$d) P(x) = x^3 + 4x^2 + 5x + 2$$

$$P(-1) = (-1)^3 + 4(-1)^2 + 5(-1) + 2 = -1 + 4 - 5 + 2 = 0$$

$$\Rightarrow P(x) = (x+1)(x^2 + bx + c) = x^3 + (b+1)x^2 + (c+b)x + c$$

$$= x^3 + 4x^2 + 5x + 2$$

$$\Rightarrow c = 2; b = 3$$

$$\Rightarrow P(x) = (x+1)(x^2 + 3x + 2) = (x+1)(x+1)(x+2)$$

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