ASSIGNMENT 1

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PROBLEM 9(b):-Using Properties of proportion solve for x, given

$$\frac{\sqrt{5x} + \sqrt{2x-6}}{\sqrt{5x} - \sqrt{2x-6}} = 4$$

SOLUTION:-

Using Componendo and Dividendo rule that is if $\frac{a}{b} = \frac{c}{d} \implies \frac{a+b}{a-b} = \frac{c+d}{c-d}$; on the given expression

$$\frac{\sqrt{5x} + \sqrt{2x-6}}{\sqrt{5x} - \sqrt{2x-6}} = \frac{4}{1} \tag{1}$$

$$\frac{\sqrt{5x} + \sqrt{2x-6} + \sqrt{5x} - \sqrt{2x-6}}{\sqrt{5x} + \sqrt{2x-6} - \sqrt{5x} + \sqrt{2x-6}} = \frac{4+1}{4-1} \tag{2}$$

$$\frac{2\sqrt{5x}}{2\sqrt{2x-6}} = \frac{5}{3} \tag{3}$$

$$3(\sqrt{5x}) = 5(\sqrt{2x-6}) \tag{4}$$

$$9 \times 5x = 5 \times 5 \times (2x-6) \tag{5}$$

$$9x = 10x - 30 \tag{6}$$

$$\implies \boxed{x = 30} \tag{7}$$