

NELSON-UDU .A. ELAH

16/ENG07016

PETROLEUM ENGINEERING

ENG 382

ASSIGNMENT 4

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NEELSON-LEON, W. ELM
16/ENGR1016
PETROLEUM ENGINEERING

ENGR 382

ASSIGNMENT 4

Solution:

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0 & 0.2 & -0.1 \\ 0.2 & 0 & 0.2 \\ 0.2 & 0.5 & 0 \end{bmatrix} \begin{bmatrix} 0.9 \\ 1.2 \\ 1.8 \end{bmatrix} + \begin{bmatrix} 0.9 \\ 1.2 \\ 1.8 \end{bmatrix}$$

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0.96 \\ 1.74 \\ 2.58 \end{bmatrix}$$

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0 & 0.2 & -0.1 \\ 0.2 & 0 & 0.2 \\ 0.2 & 0.5 & 0 \end{bmatrix} \begin{bmatrix} 0.96 \\ 1.74 \\ 2.58 \end{bmatrix} + \begin{bmatrix} 0.9 \\ 1.2 \\ 1.8 \end{bmatrix}$$

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0.99 \\ 1.908 \\ 2.862 \end{bmatrix}$$

$$10m_1 - 2m_2 + m_3 = 9$$

$$-2m_1 + 10m_2 - 2m_3 = 12$$

$$-2m_1 - 5m_2 + 10m_3 = 18$$

$$m_1 = [0, 0, 0] \quad m_1 = m_2 = m_3 = 0$$

$$m_1 = \frac{9}{10} + \frac{2}{10}m_2 - \frac{1}{10}m_3$$

$$m_1 = 0.9 + 0.2m_2 - 0.1m_3$$

$$m_2 = \frac{12}{10} + \frac{2}{10}m_1 + \frac{2}{10}m_3$$

$$m_3 = \frac{18}{10} + \frac{2}{10}m_1 + \frac{5}{10}m_2$$

$$m_3 = 1.8 + 0.2m_1 + 0.5m_2$$

$$\begin{bmatrix} 10 & -2 & 1 \\ -2 & 6 & -2 \\ -2 & -5 & 10 \end{bmatrix} \begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 9 \\ 12 \\ 18 \end{bmatrix}$$

m_{i+1}

C

m_i

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0.02 & -0.1 & 0 \\ 0.2 & 0 & 0.2 \\ 0.2 & 0.5 & 0 \end{bmatrix} \begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} + \begin{bmatrix} 0.9 \\ 1.2 \\ 1.8 \end{bmatrix}$$

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0 & 0.2 & -0.1 \\ 0.2 & 0 & 0.2 \\ 0.2 & 0.5 & 0 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} + \begin{bmatrix} 0.9 \\ 1.2 \\ 1.8 \end{bmatrix}$$

$$\begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0.9 \\ 1.2 \\ 1.8 \end{bmatrix}$$