

Chapter (2): Complex Numbers

Section (4) P. (48): 1,2,3,5,7,11,16,17,18

Section (5) P. (49/50): 1-6,10, 15,16,19,23

Section (5) P. (51): 26, 30, 31, 32

Section (6) P. (62): 1-6, 29, 31, 32, 35, 37

Section (10) P. (66): 3,4,7

Section (4) P. (68): 4, 7, 9

Chapter (2): Linear Equations, Vectors, Matrices & determinants

Section (2) P. (86): 1

Section (3) P. (93): 3

Section (6) P. (124): 2, 3, 22(a)

Chapter (5): Multiples Integrals

Section (2) P. (206): 1, 2, 4, 5, 7, 19, 33, 37, 39, 41, 42, 44

Section (3) P. (215): 7(a,b,c), 17

Section (4) P. (225): 3 (a), 11, 14, 15

Chapter (6): Vector Analysis

Q1- If $\vec{a} = -\hat{i} + 2\hat{j}$ and $\vec{b} = 5\hat{i} + 3\hat{j}$ Find: $|a|$, $|b|$, $\vec{a}+\vec{b}$, $|\vec{a}+\vec{b}|$, θ_{a+b} , $\vec{a}-\vec{b}$, $|\vec{a}-\vec{b}|$, θ_{a-b} , $3\vec{a}+2\vec{b}$, $|3\vec{a}+2\vec{b}|$, θ_{3a+2b}

Q2- If $\vec{a} = 2\hat{i} + 2\hat{j} - \hat{k}$ and $\vec{b} = 5\hat{i} - 3\hat{j} + 2\hat{k}$ Find:

- The angle between two vectors.
- A unit vector that in the same direction of $\vec{a}$.
- A unit vector that in the same direction of $\vec{b}$.
- the scalar and vector projection of $\vec{b}$ along $\vec{a}$.
- the scalar and vector projection of $\vec{a}$ along $\vec{b}$.

Q3- If $\vec{a} = 2\hat{i} + 3\hat{j} + 4\hat{k}$, $\vec{b} = \hat{i} - 2\hat{j} - 2\hat{k}$ and $\vec{c} = 3\hat{i} + 2\hat{j}$, Show that:

- $\vec{a} \cdot (\vec{b} + \vec{c}) = \vec{a} \cdot \vec{b} + \vec{a} \cdot \vec{c}$
- $\vec{a} \times (\vec{b} + \vec{c}) = \vec{a} \times \vec{b} + \vec{a} \times \vec{c}$
- $\vec{a} \times (\vec{b} \times \vec{c}) = (\vec{a} \times \vec{b}) \times \vec{c}$

Section (I) P. (104) ch (3) : 9, 10, 12, 13, 15(a), 18, 20

Section (3) P. (242): 1

Section (4) P. (247): 8

Section (6) P. (252): 1, 3, 5, 9 (a & b), 20

Section (7) P. (256): 1, 2, 3, 6, 7, 9-12, 19, 20, 21 ($\nabla^2 r^3$)