1 | **Vectors**

1.1 | **40)**

The angle between the two vectors is greater than $\frac{\pi}{2}$.

1.2 | **43)**

Answered in class.

2 | **Matrices**

2.1 | **1d)**

$$\begin{aligned}(BA)^T &= \left(\begin{bmatrix}7 & 8\\ 9 & 10\\ 11 & 12\end{bmatrix} \cdot \begin{bmatrix}1 & 2 & 3\\ 4 & 5 & 6\end{bmatrix}\right)^T \\ &= \left(\begin{bmatrix}39 & 54 & 69\\ 49 & 68 & 87\\ 59 & 82 & 105\end{bmatrix}\right)^T \\ &= \begin{bmatrix}39 & 49 & 59\\ 54 & 68 & 82\\ 69 & 87 & 105\end{bmatrix}\end{aligned}$$

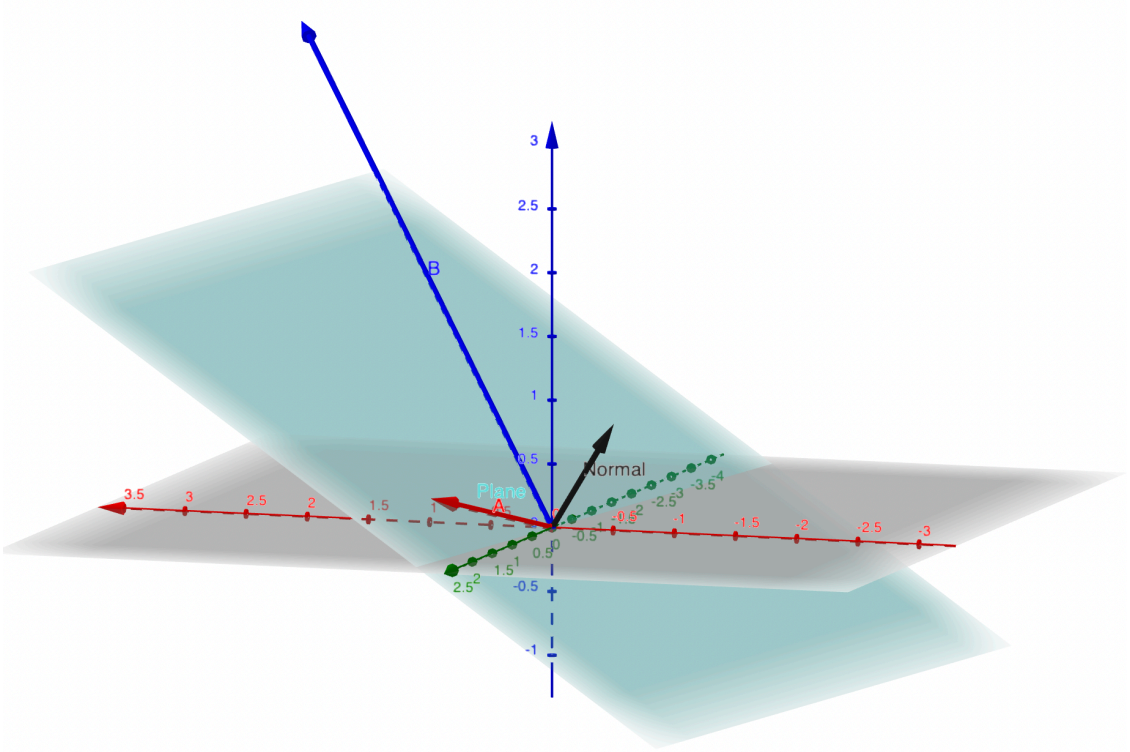
2.2 | **1e)**

$$\begin{aligned}(AB)^T &= \left(\begin{bmatrix}1 & 2 & 3\\ 4 & 5 & 6\end{bmatrix} \cdot \begin{bmatrix}7 & 8\\ 9 & 10\\ 11 & 12\end{bmatrix}\right)^T \\ &= \left(\begin{bmatrix}58 & 64\\ 139 & 154\end{bmatrix}\right)^T \\ &= \begin{bmatrix}58 & 139\\ 64 & 154\end{bmatrix}\end{aligned}$$

3 | **Vector in 3D**

$A = \langle \frac{2}{3}, 1, \frac{1}{2} \rangle$ $B = \langle 4, -6, 3 \rangle$ $Normal = \langle 6, 0, -8 \rangle$

Image:


B
Normal
Plane
A