

- 1) $\mathbf{a} = (1, 2, -2)$; $\|\mathbf{b}\| = 6$. What choice of \mathbf{b} will make the dot product $\mathbf{a} \cdot \mathbf{b}$ the least possible?
- 2) The plane P pass through the point $M(2, 3, 1)$ and is parallel to vectors $\mathbf{u} = (1, -1, 4)$ and $\mathbf{v} = (2, 1, 0)$. Find the distance from the point $N(3, 2, 4)$ to the plane P .
- 3) Find an equation of the plane that passes through $(1, 2, 3)$, $(0, 1, 0)$ and $(2, 0, 1)$.