

Show all work. 5 points each.

1. Find the scalar $proj_{\mathbf{a}}\mathbf{b}$ and $orth_{\mathbf{a}}\mathbf{b}$ and draw a picture of these vectors along with $\mathbf{a} = \langle 3, -4 \rangle$ and $\mathbf{b} = \langle 5, 0 \rangle$

2. Let $\mathbf{a} = \langle -1, 4 \rangle$ and $\mathbf{b} = \langle 6, -2 \rangle$:

(i) Find $|\mathbf{a} + \mathbf{b}|$.

(ii) Illustrate (draw) the associated triangle (or parallelogram) formed by $\mathbf{a} + \mathbf{b}$, \mathbf{a} and \mathbf{b} .