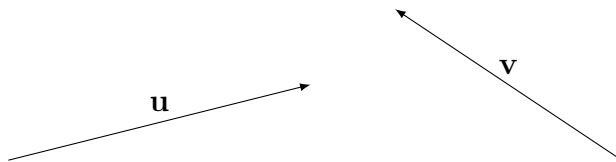


**Math 251, section 01**  
**Quiz 1**      August 31, 2016

**Name:**

By handing in this quiz you assert that you understand and have followed IIT's guidelines for academic integrity.

Here are two vectors:



(1) Draw  $\mathbf{u} + \mathbf{v}$ .

(2) Draw  $\text{proj}_{\mathbf{u}} \mathbf{v}$ .

(3) Is  $\mathbf{u} \cdot \mathbf{v}$  positive, negative, or zero? Why?

(4) Is  $\mathbf{u} \times \mathbf{v}$  zero, parallel to the page, out of the page toward you, or out of the page away from you? Why?

Let  $\mathbf{a} = \langle 2, -4, 1 \rangle$  and  $\mathbf{b} = \langle 5, 2, 5 \rangle$ .

(5) Compute  $\mathbf{a} + 2\mathbf{b}$ .

(6) Compute  $\text{proj}_{\mathbf{a}} \mathbf{b}$ .

(7) Compute  $\mathbf{a} \times \mathbf{b}$ .