

**Question 1.** (3 marks) Find a vector of length 3 which is oppositely directed to  $\vec{AB}$  where  $A(1, 5, -3)$  and  $B(3, 0, -2)$ .

**Questions 2.** Given  $\vec{u} = (1, 2, 0)$  and  $\vec{v} = (2, 1, -1)$ .

- a. (3 marks) Find  $||\vec{a}||$  where  $\vec{a} = (\vec{u} \cdot \vec{v})\vec{u} - 2\vec{v}$ .
- b. (3 marks) Find the angle in degrees between  $\vec{u}$  and  $\vec{v}$ .