Worksheet
9/7/2017

1. Given vectors $\vec{a} = \langle 1, -1, 0 \rangle$ and $\vec{b} = \langle -2, 1, 3 \rangle$.

   i) Compute $\|3\vec{a} - 2\vec{b}\|$.

   ii) Find α so that vector $\vec{a} + \alpha\vec{b}$ is collinear with vector $\vec{c} = \langle -6, 2, 12 \rangle$.

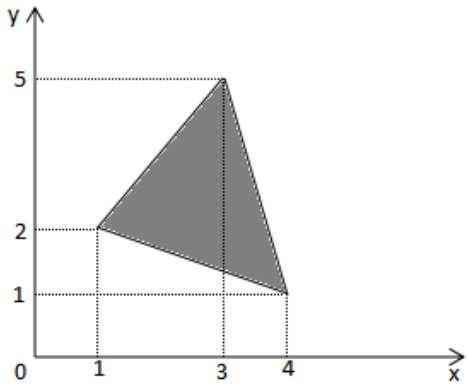
2. Given vectors $\vec{a} = \langle 1, 0, 1 \rangle$, $\vec{b} = \langle 0, -1, 1 \rangle$, $\vec{c} = \langle 1, 2, 1 \rangle$. Compute

   i) $\vec{a} \cdot \vec{b}$

   ii) $(\vec{a} \times \vec{b}) \cdot \vec{c}$

   iii) $(\vec{a} \times \vec{b}) \times \vec{c}$

3. Compute the area of the shaded triangle in the following picture. Also, compute the angles of the triangle.



4. Write the parametric equation of the line passing through the points $A = (1, 0, 1)$ and $B = (1, -1, 2)$. Can you determine the intersection of this line and the plane $z = 0$?