

$$\begin{array}{l}
 \vec{AB} = \langle 1, 1, -3 \rangle \quad B(1, -1, -2) \\
 \vec{AC} = \langle -1, 3, -1 \rangle \quad C(-1, 1, 0) \\
 A(0, -2, 1)
 \end{array}$$

$\vec{AB} \times \vec{AC}$ is orthogonal to the plane of A, B, C.

$$\vec{AB} \times \vec{AC} = \begin{vmatrix} \mathbf{i} & \mathbf{j} & \mathbf{k} \\ 1 & 1 & -3 \\ -1 & 3 & -1 \end{vmatrix} = 8\mathbf{i} + 4\mathbf{j} + 4\mathbf{k}$$

normalize this vector to get a unit vector normal to plane.

$$\|\mathbf{8i} + 4\mathbf{j} + 4\mathbf{k}\| = \sqrt{64 + 16 + 16} = 4\sqrt{6}$$

$$\text{unit vector normal } \vec{n} = \frac{2}{\sqrt{6}}\mathbf{i} + \frac{1}{\sqrt{6}}\mathbf{j} + \frac{1}{\sqrt{6}}\mathbf{k}$$

The other unit vector is $-\vec{n}$