41. The volume of a parallelepiped is equal to the product of its altitude and the area of its base. Take the base to be the parallelogram formed by the vectors $\vec{b}$ and $\vec{c}$. Its area is $bc\sin\phi$, where ϕ is the angle between $\vec{b}$ and $\vec{c}$. This is just the magnitude of the vector (cross) product $\vec{b}\times\vec{c}$. The altitude of the parallelepiped is $a\cos\theta$, where θ is the angle between $\vec{a}$ and the normal to the plane of $\vec{b}$ and $\vec{c}$. Since $\vec{b}\times\vec{c}$ is normal to that plane, θ is the angle between $\vec{a}$ and $\vec{b}\times\vec{c}$. Thus, the volume of the parallelepiped is $V = a|\vec{b}\times\vec{c}|\cos\theta = \vec{a}\cdot(\vec{b}\times\vec{c})$.