

- Let $\mathbf{u} = \langle 1, 3, -1 \rangle$ and $\mathbf{v} = \langle -1, 2, 2 \rangle$.
 - Compute $\mathbf{u} \times \mathbf{v}$.
 - Compute $\mathbf{v} \times \mathbf{u}$.
 - Compute $\mathbf{u} \cdot (\mathbf{u} \times \mathbf{v})$.
- Find the area of the triangle with vertices $P = (1, 2, 2)$, $Q = (3, 0, -1)$ and $R = (-3, 4, 1)$.
- A car produces a maximum of 175 N m of torque. If the car weighs 13000 N what is the maximum radius that the wheels could have and still allow the car to drive up a $\frac{\pi}{4}$ incline?
- Give an equation for the line through the points $P = (1, 2, 2)$, $Q = (3, 0, -1)$
- Give an equation for the line through the point $P = (-1, 1, 3)$ parallel to the vector $\mathbf{v} = \langle 2, -3, 4 \rangle$.
- Find the intersection of the line $\mathbf{r}(t) = \langle 1 + t, 2 - t, 3 - 3t \rangle$ and the line $\mathbf{q}(s) = \langle -1 + s, 2 - 2s, -4 - s \rangle$
- Do the lines $\mathbf{r}(t) = \langle 3 + t, 4 - t, 3 - 3t \rangle$ and the line $\mathbf{q}(s) = \langle -1 + s, 2 - 2s, -4 - s \rangle$ intersect?
- Describe the set of vectors which are orthogonal to the vector $3\mathbf{i} - 4\mathbf{j} + 2\mathbf{k}$.