ICE: CROSSPRODUCT **Maths 21a, 2005**

We use the notation $\vec{i} = (1,0,0)$ and $\vec{j} = (0,1,0)$ and $\vec{k} = (0,0,1)$.
1) Which of the following products are the zero vector?

a) $(\vec{i} \times \vec{j}) \times \vec{i}$?
b) $(\vec{i} \times \vec{j}) \times \vec{j}$?
c) $(\vec{i} \times \vec{j}) \times \vec{k}$?

2) Which of the following products are zero?

a) $(\vec{i} \times \vec{j}) \cdot \vec{i}$?
b) $(\vec{i} \times \vec{j}) \cdot \vec{j}$?
c) $(\vec{i} \times \vec{j}) \cdot \vec{k}$?

3) Challenge: Define

$$F(\vec{v}) = \vec{i} \times \vec{v}$$

What is

$$F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(F(\vec{j}))))))