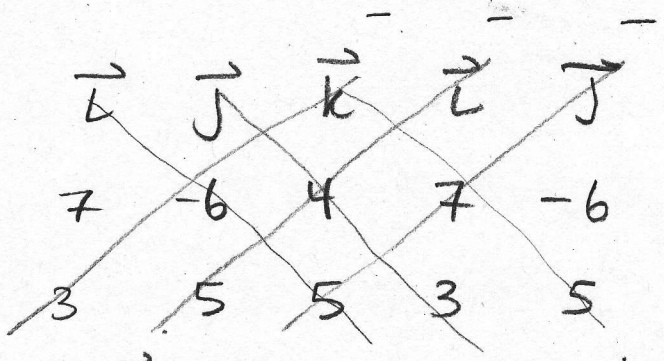
Review Problem #17

a) $\vec{A} \cdot \vec{B} = (7)(3) + (-6)(5) + (4)(5)$

$= 11$

b) $\vec{A} \times \vec{B}$

$= -50\vec{i} - 23\vec{j} + 53\vec{k}$



$18\vec{k} \quad -20\vec{i} \quad -35\vec{j} \quad -30\vec{i} \quad 12\vec{j} \quad 35\vec{k}$

$= -50\vec{i} - 23\vec{j} + 53\vec{k}$

c) the magnitude of $\vec{A} \times \vec{B}$

$= \sqrt{(-50)^2 + (-23)^2 + (53)^2}$

$= \sqrt{5838}$

d) $\vec{A} \cdot \vec{B} = AB\cos\theta$

$\frac{\vec{A} \cdot \vec{B}}{AB} = \cos\theta$

$\theta = \cos^{-1}\left(\frac{\vec{A} \cdot \vec{B}}{AB}\right)$

$\theta = \cos^{-1}\left(\frac{11}{\sqrt{101}\sqrt{59}}\right)$

$\theta \approx 81.8°$