**1C Momentum as a Vector (Not AS)**

1. A particle of mass 0.2kg is moving with velocity $\left(10i-5j\right) ms^{-1}$ when it receives an impulse $\left(3i-2j\right) Ns$. Find the new velocity of the particle.
2. An ice hockey puck of mass 0.17kg receives an impulse **Q** Ns. Immediately before the impulse the velocity of the puck is $\left(10i+5j\right) ms^{-1}$ and immediately afterwards its velocity is $\left(15i-7j\right) ms^{-1}$. Find the magnitude of **Q** and the angle between **Q** and **i**.
3. A particle of mass 0.15kg is moving with velocity $\left(20i-10j\right) ms^{-1}$ when it collides with a particle of mass 0.25kg moving with velocity $\left(16i-8j\right) ms^{-1}$. The two particles coalesce and form one particle of mass 0.4kg. Find the velocity of the combined particle.