3 Impulse III

At time $t=0$ s, the velocity of the 10 kg object is
$\vec{v} = 2\hat{i} + \hat{j} - 2\hat{k}$ m/s. The total force acting on it from $t=0$ s to $t=5$ s is:
$\sum \vec{F} = (t^2 + t - 5)\hat{i} - (3t - 1)\hat{j} + (5t + 3)\hat{k}$ N.

a) Obtain the speed of the object at $t=5$ s.