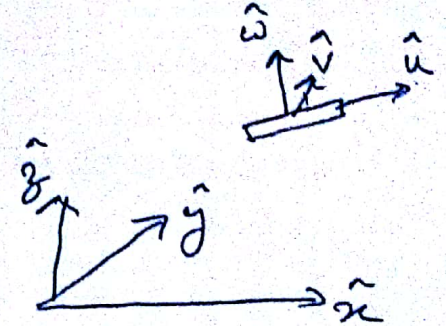
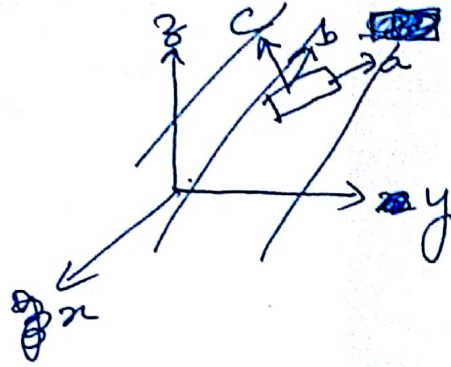
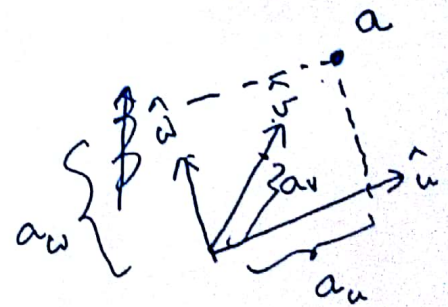
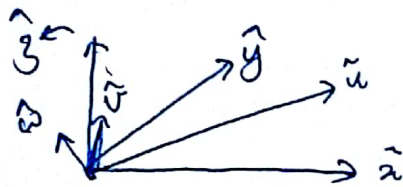


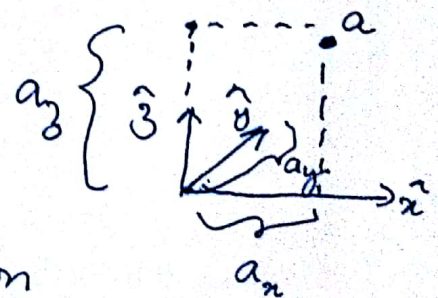
Say $\hat{x}, \hat{y}, \hat{z}$ are directions w.r.t. the earth.
 $\hat{u}, \hat{v}, \hat{w}$ are directions w.r.t. your mobile.
 let \vec{a} be acceleration of mobile due to push from person, \vec{g} is acceleration due to gravity.



Now, $a_u + g_u, a_v + g_v, a_w + g_w$
 are recorded by accelerometer; g_u, g_v, g_w
 are recorded by gravity meter. Taking
 difference, obtain a_u, a_v, a_w .



Given a_u, a_v, a_w , to obtain
 a_x, a_y, a_z you have to apply an
 inverse 3D rotation transformation
 using the angles obtained from the
 time instant.



gyroscope for that

Similarly, given $\theta_u, \theta_v, \theta_w$, to obtain g_u, g_v, g_z you need to apply an inverse 3D rotation transformation using the angles obtained from the gyroscope for that time instant.

g_z should be 9.8, remaining 2 should be 0. check.

Now, we are interested in $a_z + g_z$.