Closed book. No calculators are to be used for this quiz.
Quiz duration: 10 minutes

Name: Student ID: Signature:

If the position vector as a function of time in x-y plane is given by $r = bt\,i + ct^2\,j$, where b and c are constants.

a) When does the velocity vector make an angle of 45 deg with the x and y-axes?

b) When does the velocity vector make an angle of 45 degree with the acceleration vector a ?

Closed book. No calculators are to be used for this quiz.
Quiz duration: 10 minutes

 Name: Student ID: Signature:

If the position vector as a function of time in x-y plane is given by $r = bt^2\,i + ct^3\,j$, where b and c are constants.

   a) When does the velocity vector make an angle of 30 deg with the x axes?

   b) When does the acceleration vector make an angle of 45 degree with the y-axes?

Closed book. No calculators are to be used for this quiz.
Quiz duration: 10 minutes

Name: Student ID: Signature:

If the position vector as a function of time in x-y plane is given by $r = ct^3\,i + bt\,j$, where b and c are constants.

a) When does the velocity vector make an angle of 60 deg with the x-axes?

b) When does the acceleration vector make an angle of 45 degree with the position vector r?