The University of Jordan
King Abdullah II School for Information Technology
Computer Science Department
Advanced Computer Graphics – Spring 2015/2016

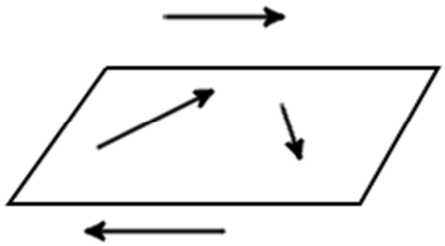
Assignment # 1 **Due Date: 16/2/2016**

Q1: Consider the vectors

a = <1, 1, 0>, b = <0, 2, 1>, c = <3, 4, t>.

(a) Let θ be the angle between the vectors a and b. Find θ.

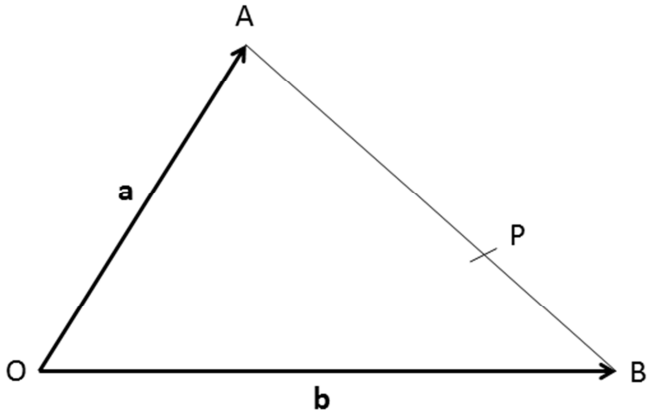
(b) Vectors parallel to the same plane, or lie on the same plane are called coplanar. See figure below



For what value of t the vectors a, b and c are coplanar?

Q2: Find the center *C* and radius *R* of the sphere passing through the points A = (0, 2, 1) and B = (4, 0, 3) with its center at the midpoint of the line segment AB.

Q3:



OAB is a triangle.
$\overrightarrow{OA} = \boldsymbol{a}$
$\overrightarrow{OB} = \boldsymbol{b}$

(a) Find the vector $\overrightarrow{AB}$ in terms of **a** and **b**.

(b) *P* is the point on $\overrightarrow{AB}$ such that *AP: PB* = 3: 2. Show that $\overrightarrow{OP} = \frac{1}{5}(2a + 3b)$