TRANSPORTA UN SAKARU INSTITUTS

EXERCISES OF

HIGHER MATHEMATICS I

INTRODUCTION TO VECTORS

1. Draw a right-handed coordinate system and locate the points whose coordinates are

   a) $(3,4,5)$ *b*) $(-3,4,5)$ *c*) $(3,-4,5)$ *d*) $(3,4-5)$

   e) $(-3,-4,5)$ *f*) $(-3,4-5)$ *g*) $(3,-4,-5)$ *h*) $(-3,-4,-5)$

2. Find the components of the vector having initial point P_1 and terminal point P_2

   a) $P_1(4,8),\ P_2(3,7)$ *b*) $P_1(3,-5),\ P_2(-4,-7)$ *c*) $P_1(-5,0),\ P_2(-3,1)$

   d) $P_1(3,-7,2),\ P_2(-2,5,-4)$ *e*) $P_1(-1,0,2),\ P_2(0,-1,0)$

3. Let $\boldsymbol{u}=(-3,1,2)$, $\boldsymbol{v}=(4,0,-8)$, $\boldsymbol{w}=(6,-1,-4)$. Find the components of

   a) $\boldsymbol{v}-\boldsymbol{w}$ *b*) $6\boldsymbol{u}+2\boldsymbol{v}$ *c*) $-\boldsymbol{v}+\boldsymbol{u}$ *d*) $5(\boldsymbol{v}-4\boldsymbol{u})$ *e*) $-3(\boldsymbol{v}-8\boldsymbol{w})$

4. Find the norm of $\boldsymbol{v}$

   a) $(4,-3)$ *b*) $(2,3)$ *c*) $(2,2,2)$ *d*) $(-7,2,-1)$ *e*) $(2,6,1)$

5. Find the distance between P_1 and P_2

   a) $P_1(-3,6),\ P_2(-1,-4)$ *b*) $P_1(7,-5,1),\ P_2(-7,-2,-1)$ *c*) $P_1(3,3,3),\ P_2(6,0,3)$