SUMMARY OF SECTION 3.2

<u>THEOREM</u> - IF u, v AND w ARE VECTORS IN 2- OR 3-SPACE AND k AND l ARE SCALARS, THEN

A) $u+v=v+u$

B) $u+(v+w)=(u+v)+w$

C) $u+0=0+u=u$

D) $u+(-u)=0$

e) $k(lu)=(kl)u$

F) $k(u+v)=ku+kv$

g) $(k+l)u=ku+lu$

h) $1\cdot u=u$

THE LENGTH OF A VECTOR u IS OFTEN CALLED THE NORM OF u AND IS DENOTED $\|u\|$.

IF $u=(u_1,u_2)$, THEN $\|u\|=\sqrt{u_1^2+u_2^2}$.

IF $u=(u_1,u_2,u_3)$, THEN $\|u\|=\sqrt{u_1^2+u_2^2+u_3^2}$.

A VECTOR OF LENGTH 1 IS CALLED A <u>UNIT VECTOR</u>.

WE HAVE THE EQUALITY $\|ku\|=|k|\,\|u\|$.

RECALL THAT THE DISTANCE BETWEEN POINTS (x_1,y_1) AND (x_2,y_2) IS $\sqrt{(x_1-x_2)^2+(y_1-y_2)^2}$ WHILE THE DISTANCE BETWEEN (x_1,y_1,z_1) & (x_2,y_2,z_2) IS $\sqrt{(x_1-x_2)^2+(y_1-y_2)^2+(z_1-z_2)^2}$.