

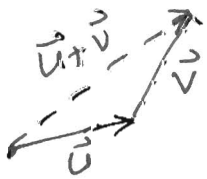
QUIZ #1

CALC 160, SPRING 2006

Name KEY IARTLUHC

1) Define vector addition and give the formulas for it in \mathbb{R}^2 and \mathbb{R}^3 .

Def If \vec{u} and \vec{v} are vectors positioned so that the initial point of \vec{v} is the terminal point of \vec{u} , then the sum $\vec{u} + \vec{v}$ is the vector from the initial point of \vec{u} to the terminal point of \vec{v} .



$$\text{In } \mathbb{R}^2: \langle a, b \rangle + \langle c, d \rangle = \langle a+c, b+d \rangle$$

$$\text{in } \mathbb{R}^3: \langle a, b, c \rangle + \langle d, e, f \rangle = \langle a+d, b+e, c+f \rangle$$

2) Find the equation of the sphere with center $(1, 2, 3)$ and passing through the point $(2, 4, 4)$.

We first need the radius, which is

$$\text{dist}((1, 2, 3), (2, 4, 4)) = \sqrt{(2-1)^2 + (4-2)^2 + (4-3)^2} = \sqrt{1+4+1} = \sqrt{6}$$

Then the equation is

$$(x-1)^2 + (y-2)^2 + (z-3)^2 = 6.$$

