

# Math 3113 - Multivariable Calculus

Quiz #1 - 2006.01.18

Solutions

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1. Find the distance between the points  $(3, 4, 5)$  and  $(4, 6, -10)$

The distance between the two given points is defined to be

$$\begin{aligned}d &= \sqrt{(3-4)^2 + (4-6)^2 + (5+10)^2} \\ &= \sqrt{(-1)^2 + (-2)^2 + (15)^2} \\ &= \sqrt{230}\end{aligned}$$

2. Write the equation of the sphere with radius 3 centered at  $(-2, 4, 6)$ .

The equation is

$$(x+2)^2 + (y-4)^2 + (z-6)^2 = 3^2$$

3. Sketch the surface given by the equation  $z = 3$  in  $\mathbb{R}^3$ .

