

Time Limit: 4 minutes

Instructions: Closed book, notes. No calculator allowed.

Instructions for all quizzes: Print your last name above. Also, fill in the bubble for your section.

Fill the bubble for the correct answer. Write your answers in any blanks provided.

Your work will not be graded unless requested.

1. How far is the point $(2, -2, 1)$ from the origin?

1 $\sqrt{5}$ $\sqrt{6}$ 3 5 6 9

$$\text{dist}((0, 0, 0), (2, -2, 1)) = \sqrt{(2-0)^2 + (-2-0)^2 + (1-0)^2} = \sqrt{9} = 3$$

2. Find the radius and center of the sphere

$$x^2 + y^2 + z^2 + 4x - 6y = 12$$

The center of the sphere is $(a, b, c) = (-2, 3, 0)$.

The radius of the sphere is $r = 5$.

SHOW YOUR WORK BELOW Complete the square.

$$(x^2 + 4x + 4) + (y^2 - 6y + 9) + z^2 = 12 + 4 + 9$$

$$(x + 2)^2 + (y - 3)^2 + z^2 = 25.$$

$$(x - (-2))^2 + (y - 3)^2 + z^2 = 5^2.$$

Now compare to our formula for a sphere with center (a, b, c) and radius r :

$$(x - a)^2 + (y - b)^2 + (z - c)^2 = r^2.$$