

No calculators, cell phones, computers, notes, etc.

Circle your answer. Make your work correct, complete and coherent.

The quiz is worth 5 points. The solutions will be posted on my website later today.

Quiz 1, August 31, 2017, 11:40 class

Give the equation or equations for the circle in which the plane through the point $(1, 1, 3)$ perpendicular to the z -axis meets the sphere of radius 5 centered at the origin.

ANSWER: The sphere of radius 5 with center at the origin is $x^2 + y^2 + z^2 = 25$. Every plane perpendicular to the z -axis has the form $z = \text{some number}$. So the plane perpendicular to the z -axis and through the point $(1, 1, 3)$ is $z = 3$. The intersection of our plane and our sphere is the set of points which satisfy both equations $z = 3$ and $x^2 + y^2 + z^2 = 25$.