

Please PRINT your name \_\_\_\_\_

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

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

Please take a picture of your quiz (for your records) just before you turn the quiz in. I will e-mail your grade and my comments to you. I will keep your quiz.

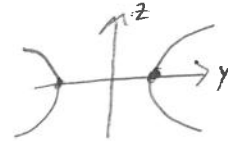
The quiz is worth 5 points. The solutions will be posted on my website later today.

### Quiz 3, February 15, 2023

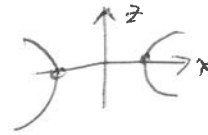
Describe and graph  $x^2 + y^2 - z^2 = 1$  in three-space. What is the name of this object?

$$x^2 + y^2 - z^2 = 1$$

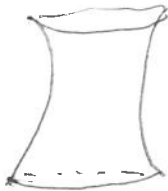
When  $x=0$  the equation is a hyperbola  $y^2 - z^2 = 1$



When  $y=0$  the equation is a hyperbola  $x^2 - z^2 = 1$



When  $z=0$  the equation is  $x^2 + y^2 = 1$  so the graph is a circle



The surface is the hyperboloid of one sheet. Draw the hyperbola  $y^2 - z^2 = 1$  in the  $y-z$  plane. Rotate this hyperbola about the  $z$ -axis