

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.

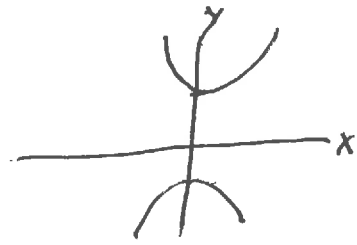
**Quiz 3, February 16, 2022**

Describe and graph  $y^2 - x^2 - z^2 = 1$  in three-space. What is the name of this object?  
**ANSWER:** Look at the answer to number 1 on the following page:

# Spring 2019 Exam 3 Pictures

①  $y^2 - x^2 - z^2 = 1$

When  $z=0$   $y^2 - x^2 = 1$  hyperbola

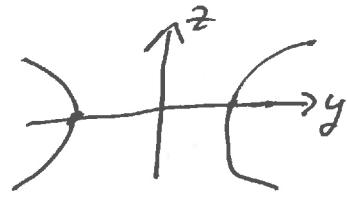


When  $y=0$   $-x^2 - z^2 = 1$  No graph

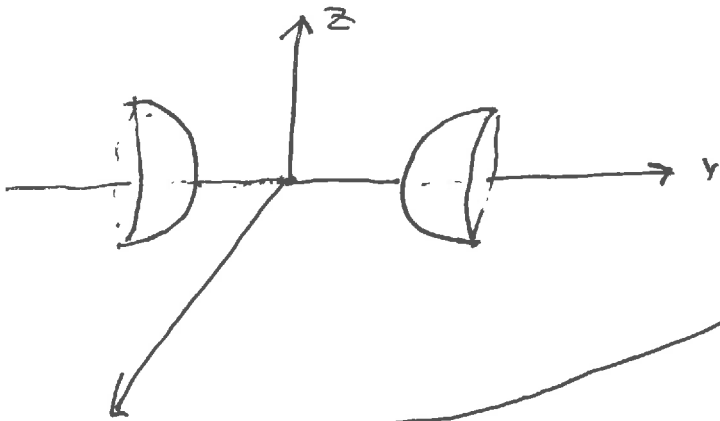
When  $y = \pm 1$   $-x^2 - z^2 = 0$  one point

When  $1 < y < -1$  Positive constant  $\Rightarrow x^2 + z^2$  circle

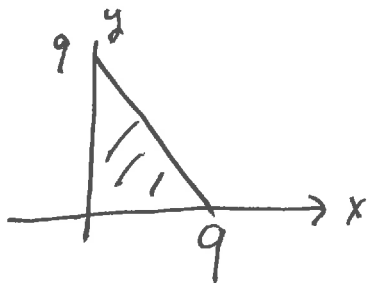
When  $x=0$   $y^2 - z^2 = 1$  hyperbola



The graph is a hyperboloid of 2 sheets



④



⑤

