

Name: \_\_\_\_\_

- No electronic devices are allowed. You must show your work to obtain credit.
  - You may use the back if necessary. Please indicate clearly if you do so.
1. (5 points) Find an equation for the surface consisting of all points  $P$  for which the distance from  $P$  to the  $y$ -axis is 3 times the distance from  $P$  to the  $xz$ -plane. Identify the surface.

2. (5 points) For  $\mathbf{r}(t) = \langle t, t^2, t^3 + 1 \rangle$ , find  $\mathbf{r}'(t) \times \mathbf{r}''(t)$ .