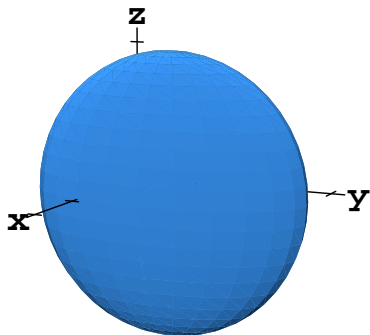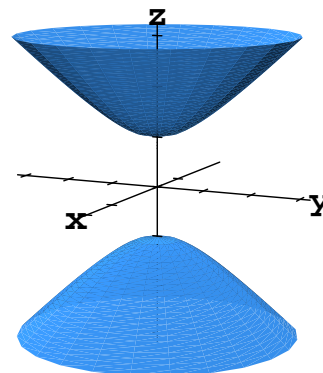6. (18 points) Here are two surfaces in space:

Surface A

Surface B

Here are 6 equations of surfaces:

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

2. $x^2 - y^2 - z = 0$

3. $2x + y - z = 2$

4. $4x^2 - 8x + y^2 - 2y + z^2 = -1$

5. $x^2 - 2x + y^2 - 2y + z^2 = 2$

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

For each surface, pick the equation that describes it. Provide a brief justification for your choice. **You will not receive any credit unless you provide a valid justification.**

(a) The equation for surface A is ____. My reason for choosing this answer is:

(b) The equation for surface B is ____. My reason for choosing this answer is: