This exam is worth 100 points and has 6 problems.

Show all work and simplify your answers! Answers with no justification will receive no points unless otherwise noted.

Please begin each problem on a new page.

DO NOT leave the exam until you have satisfactorily scanned and uploaded your exam to Gradescope.

You are taking this exam in a proctored and honor code enforced environment. $\boxed{\textbf{NO}}$ calculators, cell phones, or other electronic devices or the internet are permitted. You are allowed one 8.5″ 11″ crib sheet with writing on one side.

0. At the top of the first page that you will be scanning and uploading to Gradescope, write the following statement and sign your name to it: ″I will abide by the CU Boulder Honor Code on this exam.″ **F**

5. [2350/111622 (18 pts)] A friend of yours has built a cool art sculpture in the shape of the surface $\frac{1}{2}x^2 \quad y \quad {}^P\overline{3}z = 0$. To protect it from