Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Simplify the radical $\sqrt[3]{\frac{-27y^{36}}{1000}}$

2. Simplify the radical $\sqrt[4]{\frac{a^5}{16b^{12}}}$

3. Simplify $\left(-\frac{8}{27}\right)^{-1/3}$.

4. Use rules of exponents to simplify $(\frac{5^4}{3^6})^{1/2}$.