

Show all work clearly and in order, and circle your final answers.  
Justify your answers algebraically whenever possible.

**1.** (2 points) Compute  $\frac{d}{dx} \left[ \frac{x^3+1}{x^4-2} \right]$ .

**2.** (2 points) Compute  $\frac{d}{dx} \left[ \frac{3x^2}{\sqrt[3]{x}} \right]$ .

**3.** (2 points) Compute  $\frac{d}{dx} \left[ \frac{x}{\sin(x)} \right]$ .