## Remember to show all of your work.

**Problem 1.** Use the Squeeze Theorem to evaluate the limit, or explain why the theorem should not be used.

$$\lim_{x \to 0} x^4 \sin\left(\frac{4}{x^2}\right)$$

**Problem 2.** Determine the interval(s) on which the following function is continuous. Write your answer in interval notation.

$$g(x) = \sqrt{x^2 - 1} + \frac{\sin(x)}{x + 2}$$