

# Math 1513 - College Algebra

## Quiz #22 - 2011.11.03

### Solutions

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1. Give an example of a nonlinear system of two inequalities in three unknowns.

Answers will vary, but here is one example

$$\begin{cases} 2x^2 + 3xy - 5xyz \leq 0 \\ 2x^2 - 5y^2 + 6z^3 > 1 \end{cases}$$

2. Use the properties of logarithms to write the following expression as a sum or difference of simple logarithmic terms:

$$\begin{aligned} \ln \left( \sqrt[3]{\frac{2+x}{x-1}} \right) &= \frac{1}{3} \ln \left( \frac{2+x}{x-1} \right) \\ &= \frac{1}{3} \left( \ln(2+x) - \ln(x-1) \right) \end{aligned}$$