Algebra Challenge:
Proof or Counterexample
Part 2

For each statement below, either prove it (start with the left-hand side of the equation, and show step-by-step how to arrive at the right-hand side), or give a counterexample (substitute specific numbers in for the letters to show that the statement is false in general).

1. $(a^3)^4 = a^7$

2. $(a+b)^{1/3} = a^{1/3} + 2ab + b^{1/3}$

3. $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$