

# Take Home Final Questions

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No Math Lab Help

Show all work. Answers without work is zero credit.

1. (30 points) Given  $f(x) = \sqrt{1+3x}$ 
  - a. Find the first 3 terms of the Taylor Expansion about  $x = 1$ .
  - b. Use the previous part to estimate  $\sqrt{7}$  (Hint  $7 = 1 + (3)(2)$ ). Compare your answer with that of your calculator.
  - c. What is the error in the estimate in the previous part?
  
2. (20 points) Find the first 3 terms of the series  $y = \tan(x)$  about  $x = 0$ .