

Math 1271 Quiz 5  
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1.[5 pts.] Using linear approximation, estimate  $\sqrt{98}$ .

2.[5 pts.] Let  $f(x) = 3x^3 + 2x - 1000$ . Do there exist distinct real numbers  $a < b$  so that  $f(a) = f(b) = 7$ ? Justify your answer.

3.[10 pts.] Let  $g(x) = 2 + 3x - x^3$ . For what values of  $x$ , if any, does  $g(x)$  have a local maximum, local minimum, or inflection point? Identify which  $x$  values have which property.