

MTH 121 — Fall — 2004  
Essex County College — Division of Mathematics  
Quiz # 7<sup>1</sup> — November 11, 2004

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Show all work clearly and in order, and box your final answers. Justify your answers algebraically whenever possible. You have 20 minutes to take this 10 point quiz. When you do use your calculator, sketch all relevant graphs and write down all relevant mathematics. **Do only one of the following two problems.**

1. The volume<sup>2</sup> of a cube is increasing at a rate of  $10 \text{ cm}^3/\text{min}$ . How fast is the surface area<sup>3</sup> increasing when the length of an edge is 30 cm?
2. Find the linearization of

$$f(x) = \sqrt{25 - x^2}$$

near  $x = 3$ . Use this linear approximating function to approximate the  $f(3.01)$ .

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<sup>1</sup>This document was prepared by Ron Bannon using L<sup>A</sup>T<sub>E</sub>X.

<sup>2</sup> $V = x^3$

<sup>3</sup> $S = 6x^2$