

Math 32A. Quiz 6b March 2, 2006

Name:

Write your solution on the exam sheet. Show some work and justify your answer. Do not just give the correct answer. You have 15 minutes. Good luck!

1. The length and width of a rectangle are measured as 24 cm and 30 cm, respectively, with an error of at most 0.1cm each. Use differentials to estimate the maximum error in the calculation of the area of the rectangle.

Solution: $A = xy$ and $dA = ydx + xdy$. Thus

$$A \sim dA + 720 + 30(.1) + 24(.1)$$

and the maximal error is $(30 + 24)(.1) = 5.4$.