

Math 151 Quiz #7
November 10, 2009

Name: _____

Simplify your answers. Show all work on a separate paper stapled to this sheet. No calculators permitted.

1. (4 pts.) Differentiate $y = (\ln x)^{\sin x}$ using logarithmic differentiation. Do not simplify.

2. The position of an African swallow carrying a coconut (gripping it by the husk) is given by
$$s = t^3 - 9t^2 + 15t$$
 in feet at t seconds for $t \geq 0$.
 - (a) (3 pts.) When is the swallow at rest? When is the swallow moving in the positive direction?

 - (b) (2 pts.) When is the swallow speeding up?

 - (c) (1 pts.) What is the **average** velocity of the swallow between time 0 and time 2?