

# Test 3

## FORMULAS

### Date

Tuesday, Nov 3, 2009

### Time

9:30 – 10:45 a.m. or  
11:00 – 12:15

### Chapters

3.1, 3.2, 4.2- 4.5,  
5.1 – 5.3

- Product Rule shortcut =  $f \cdot s' + s \cdot f'$
- Quotient Rule shortcut =  $\frac{lo \cdot dhi - hi \cdot dlo}{(lo)^2}$
- Chain Rule shortcut = derivative of outside term times derivative of inside term
- If  $f(x) = e^{kx}$ , then  $f'(x) = k \cdot e^{kx}$
- If  $f(x) = \ln u$ , then  $f'(x) = \frac{u'}{u}$
- Exponential Growth/Decay model:  
 $P(t) = P_0 e^{kt}$
- Rate of Growth/Decay:  $P'(t) = k \cdot P(t)$

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- Compound Interest:  $A = Pe^{rt}$
- Relative Rate of Change:  $\frac{d}{dt} \ln f(t) = \frac{f'(t)}{f(t)}$
- Elasticity of Demand:  $E(p) = \frac{-pf'(p)}{f(p)}$
- Extra Notes: