**Math 1325 - Calculus with Application *Exam* 2 *Review***

*Professor*: Fred Khoury

1. Find the derivative.

|  |  |  |
| --- | --- | --- |
|  |  |  |

**2.** Find the derivative:

|  |  |  |
| --- | --- | --- |
|  |  |  |

1. A brick becomes dislodged from the top of the Empire State Building at a height of 1250 feet. The position function is where the bricks distance above the sidewalk in feet after *t* seconds. Find the velocity functions. What is the velocity of the brick after 5 seconds?
2. Suppose the quantity demanded weekly of the Super Titan radial tires is related to its unit price by the equation  where *p* is measured in dollars and *x* is measured in units of a thousand. How fast is the quantity demanded changing when *x* = 4, *p* = 180, and the price/tire is increasing at the rate of $2/week?
3. Carlos is blowing air into a soap bubble at the rate of 8 cm3/*sec*. Assume that the bubble is spherical . How fast is the radius changing at the instant of time when the radius is 10 cm?
4. The position function for an amusement ride moving on a horizontal track is where *x* is in feet and *t* is in seconds. What is the velocity at 20 seconds?
5. Lynbrook West, an apartment complex, has 100 two-bedroom units. The monthly profit (in dollars) realized from renting *x* apartments is



Compute the marginal profit when *x = 50.*

1. The population of Americans age 55 and older as a percent of the total population is approximated by the function



where t is measured in years, with t = 0 corresponding to the year 2000. At what rate will the percent of Americans age 55 and older be changing in 2010?

***Solutions*:**

**1**.

|  |  |
| --- | --- |
|  |  |

**2.**

|  |  |  |
| --- | --- | --- |
|  |  |  |

**3.**  

**4**. 

**5.** 

**6**. 

**7**. 

**8**. 

Find the Derivatives of 

***Solution***

 ***Exponential Form***









Find the Derivatives of ******

***Solution***















Find the Derivatives of 

***Solution***



 ***Quotient Rule***



Find the Derivatives of 

***Solution***

 ***Quotient Rule***

 ***Product Rule***





Find the Derivatives of 

***Solution***



 









Find the Derivatives of 

***Solution***

 ***Quotient Rule***

 ***Product Rule***

 ***Power Rule***



Find the Derivatives of 

***Solution***









