**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Calculus 12**

**4.0 Existence Theorems**

**Assignment**

**A. Mean Value Theorem**

1) Given , find all *c* in the interval [1, 4], such that

2) The height of an object *t* seconds after it was dropped from a height of 500 feet is given by

a) Find the average velocity of the object during the first 3 seconds.

b) Use the Mean Value Theorem to verify that at some time during the first three seconds of fall the instantaneous velocity equals the average velocity. Find that time.

Answers: 1) 2a) ft/sec b) seconds

**B. Rolle’s Theorem**

1) In each question, determine whether Rolle’s Theorem can be applied to *f* on the indicated interval. If it can be applied, find all values of *c* in the interval such that

a)

b)

c)

d)

Answers: a) b) does not apply c) d)