MAC 2311 Hybrid Calculus I (B)

**Sections 3.5-3.6, Exponentials**

1. If , represents the position of an object at time *t*, what does the derivative of and represent?

is the velocity and is the speed.

2. An object begins moving along a straight line. Its displacement *s* relative to its starting point after *t* seconds is given by *s* = 16*t* − *t*2. When does the direction of the object changes?

when , so The object moves away from starting point for 8 seconds, and then turns back

3.Let , *f* (2) = 3 , *f* ′(2) = 3 , and *f* ′(3) = 9 . Then find *h*′(2).

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4. If, then find f′(*x*).

5. Find the derivative of.

6. Find the derivative of.

7. Find the speed and acceleration of the position function at t=1.

; . , .

8. Find the derivative of.

9. Find the derivative of.

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10. True/ false: . Explain.

False: See the graph of

, so.