MAC 2311 Hybrid Calculus I (B)

**Sections 2.1-2.3**

1.The position of an object moving along a line is given by the function *s*(*t*) = *t* 2 − 2*t*.

a) What is the average velocity over the interval [1, 2]? ANS: 1

b) What is the instantaneous velocity at the point *t* = 1? ANS: 0

2. Find the slope of the tangent line to at**.** ANS: 4

3. For defined (−∞, ∞), approximate in the table below. If the limit Does Not Exist (DNE), explain why. ANS: 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | 0.1 | 0.01 | 0.001 | 0.0001 | 0.00001 |
| *g*(*x*) | 2.9 | 2.99 | 2.999 | 2.9999 | 2.9999 |

4. Evaluate: If the limit DNE explain:

 

a) 1 b) 1 c) 0

d) DNE e) 2 f) 1

g) 1 h) 2 i) 0.4

j) DNE k) 1 l) DNE

 5. 2 6. -1/4

7. 1/4 8. DNE

9. 5 10. 1/4

11. True/ False; the limit DNE, if. Explain. ANS: false; see #5-8 above.