Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 1 LT 3 & 4 Retake 2 Assignment (2.2 – 2.3 story problems and 2.4)

1. Use the table of values to help calculate the derivative of *h(x)* at the given point. If there is not enough information be sure to state why in your answer.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | x = 1 | x = 2 | x = 3 | x = 4 | x = 5 | x = 6 | x = 7 |
| *f(x)* | 2 | -3 | 5 | 1 | 7 | 8 | 9 |
| *f ‘ (x)* | 0 | -3 | 4 | -6 | 2 | 5 | -5 |
| *g(x)* | 3 | 8 | -1 | 0 | 6 | 10 | 1 |
| *g’(x)* | 4 | 1 | -9 | 2 | 5 | 3 | 2 |

a) *h(x) = f(x4)* when x = 1 b) *h(x) = 5x - f(g(x))* when x = 4

1. How do you calculate an average rate of something?
2. How do you find the rate at which something is changing at a given moment in time?
3. What is the calculus connection between position, velocity, and acceleration?
4. Find the derivative of the following:

a) $m\left(x\right)=2(-3x^{2}-2x)^{4}$ b) $t\left(p\right)=\frac{2p^{3}}{(p^{2}-1)^{4}}$

c) $n\left(r\right)=\left(\frac{5r-4}{r^{3}}\right)^{4}$ d) $y=4x^{3}\sqrt{2x+5}$

e) $f\left(x\right)=-4x^{3}sec⁡(3x)$ f) $g\left(b\right)=cot^{5}(b)$

6. please do p. 158# 33, 60 and p. 117# 93