These problems come to us courtesy of Calculus: Graphical, Numerical, Algebraic. 3rd Edition by Finney, Demana, Waits, and Kennedy, Published by Pearson-Prentice Hall. From Page 107, Exercises #29 and #30.

The table below gives the approximate distance traveled by a downhill skier after t seconds for $0 \leq t \leq 10$.

Time (seconds)	Distance Travelled (feet)
0	0
1	3.3
2	13.3
3	29.9
4	53.2
5	83.2
6	119.8
7	163.0
8	212.9
9	269.5
10	332.7

1. On the same set of coordinates (either paper or digital), plot the data above and also good-faith sketch of d’(t).

2. Discuss the derivative of this relation. What does the derivative represent? What units would d’(t) values be measured in?

3. Develop a function rule for d’(t). Explain your steps, the challenges, and how you are checking your answer.

Below is another set of data, this time we are looking at Bear Creek. The elevation of Bear Creek changes as it moves downstream.

Distance Downriver (in miles)	River Elevation (feet)
0.00	1577
0.56	1512
0.92	1448
1.19	1384
1.30	1319
1.39	1255
1.57	1191
1.74	1126
1.98	1062
2.18	998
2.41	933
2.64	869
3.24	805

4. Explain the term *gradient* as it applies to land elevation. (It's possible you may need to use your online resources for this one.)

5. Explain the relationship between the data set above, the gradient of the creek and the derivative of the numerical relationship.

6. From a white water rafting perspective, the highest instantaneous gradient would cause the most exciting (or dangerous, depending on your perspective) moments along the creek. Suppose you were explaining to a potential tourist where along the creek the rafting would be the most exciting (or dangerous). What would you tell them? How did you figure out what to tell them?