**Intellectual Need Task for the Chain Rule**

A rock is thrown into a pond, creating a circular ripple that travels outward. As the ripple travels, it displaces sediment on the bottom of the lake.

* R(*t*) is the radius of the ripple *t* seconds after the rock hits the surface of the pond.
* V(*r*) is the volume of displaced sediment from a ripple that has radius *r*.
* The total displacement is given by D(*t*) = V(R(*t*)).

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| |  |  | | --- | --- | | ***t*** | **R(t)** | | 1 | 2 | | 2 | 4 | | 3 | 6 | | 4 | 8 | | 5 | 10 | | 6 | 12 | | 7 | 14 | | 8 | 16 | | 9 | 18 | | 10 | 20 | | |  |  | | --- | --- | | ***r*** | **V(r)** | | 1 | 5 | | 2 | 10 | | 3 | 15 | | 4 | 20 | | 5 | 25 | | 6 | 30 | | 7 | 35 | | 8 | 40 | | 9 | 45 | | 10 | 50 | |

Determine the average rate of change of *D*(*t*) with respect to *t* between *t*=1 and *t*=3.

What about between *t*=1 and *t*=4?