

Derrick is trying to save money for the down payment on a used car. His parents have said

that, in an effort to help him put aside money, they will pay him 10% interest on the money

Derrick accumulates each month. At the moment, he has saved $200.

**1.** Suppose Derrick does not add any money to the savings. Write a recursive rule and an

explicit function rule that model the money Derrick will accumulate with only the

addition of the interest his parents pay.

**2.** How long will it take Derrick to save at least $2,000 for the down payment if the only

additions to his savings account are his parents’ interest payments?

**3.** In an effort to speed up the time needed to save $2,000, Derrick decides to take on some

jobs in his community. Suppose he commits to adding $50 per month to his savings,

starting with the initial deposit from his parents. Fill in the table, showing the amount of

money Derrick will have over several months.



**4.** Make a scatterplot of the data you generated in the table and compare the scatterplot to

the function rule you found for Question 1. How does adding $50 per month to Derrick’s

savings change the way in which his money grows?

**5.** How long will it take Derrick to save $2,000 for the down payment if he continues to add

$50 every month? Explain how you arrived at your answer.

**6. REFLECTION:** How would you write a recursive routine to model this situation? A function

rule? Explain your reasoning for each type of rule and compare your responses.

**7. EXTENSION:** Suppose Derrick changes the amount of money he adds to his savings each

month to $100. How does this affect the time it takes to save $2,000? How much does he

have to add to the savings each month to have enough money for the down payment on

his car in six months? Explain your responses.