Exponential Functions (GROWTH)

1. Infections seldom start with a single bacterium. Suppose that you cut yourself on a rusty nail that puts **10 bacteria** cells into the wound. Suppose also that those bacteria **double** after every quarter of an hour. (Assume that your body does not fight off the infection and you do not apply medication.)

a. Complete the table below

Number of quarter hour periods	0	1	2	3	4	5
Number of Bacteria in the Cut						

b. Write a recursive rule showing how the number of bacteria changes from one quarter-hour to the next, starting from 10 at time 0.

c. Write a rule showing how to calculate the number of bacteria N in the cut after x quarter-hour time periods.

d Use the rule in either Parts b or c to calculate the number of bacteria after 10 hours.

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