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The drug penicillin was discovered by observation of mold growing on biology lab dishes. Suppose a mold begins growing on a lab dish. When first observed, the mold covers 7 cm^2 of the dish surface, but it appears to double in area every day.

a. What rules can be used to predict the area of the mold patch 4 days after the first measurement:

i. using NOW-NEXT form? *Start @* ___7_____, *NEXT*=__Now_x_2__

ii. using "y = …" form? *Y*=__7(2^X)___

b. How would each rule in Part a change if the initial mold area was only 3 cm?

*Start @*____3____, *Next*=Now x 2

Y=3(2^X)

c. How would each rule in Part a change if the area of the mold patch increased by a factor of 1.5 every day?

*Start @*___3___, *Next*=_Now_x_1.5_

Y=7(1.5^x)

d. What mold area would be predicted after 5 days in each set of conditions from parts a-c?

a. 224

b. 96

c. 53.15625

e. For "y=…" rules used in calculating growth and mold area, what would it mean to calculate values of y when x is a negative number?

Your calculating an estimated growth of the mold before you observations started.

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f. Write and solve equations or inequalities that help to answer the questions

i. If the area of a mold patch is first measured to be 5 cm2 and the area doubles each day, how long will it take that mold sample to grow to an area of 40 cm^2?

Equation or inequality: 40=5(2^x)

Solution: x=3 40=5(2^3)

ii. For how many days will the mold patch in part *i* have an area less than 330 cm^2?

Equation or inequality: *330>5(2^x)*

Solution: x<7 330<5(2^7)