Drug Medication

The formula $D(t) = D_0 e^{-0.2t}$ can be used to find the number of milligrams (mg) $D$ of a certain drug that is in a patient’s bloodstream after $t$ hours, assuming that $D_0$ mg of the drug is administered initially ($t = 0$). Assume 5 mg of the drug is administered initially.

Equation: ________________________________

1. Approximately how many mg of the drug will be present in the bloodstream after …

   0 hours: Calculator entry: ___________________________ $\approx$ ________ mg (Round to 1 decimal place)

   1 hour: Calculator entry: ___________________________ $\approx$ ________ mg

   3 hours: Calculator entry: ___________________________ $\approx$ ________ mg

   6 hours: Calculator entry: ___________________________ $\approx$ ________ mg

   10 hours: Calculator entry: ___________________________ $\approx$ ________ mg

2. Use this data and sketch the graph of the exponential function below. Label the axes.

3. When the number of mg of the drug in the patient’s bloodstream reaches 2 mg, the drug needs to be administered again. Approximately how long until another injection needs to be administered? (Round your answer to 1 decimal place)

   **Solve Algebraically**
   **Solve Graphically**

   Equation: