After a person takes medicine, the amount of drug left in the person's body decreases over time. When testing a new drug, a pharmaceutical company develops a mathematical model to quantify this relationship. To find such a model, suppose a dose of 1000 mg of a certain drug is absorbed by a person's bloodstream. Blood samples are taken every five hours, and the amount of drug remaining in the body is calculated.

Hours Since Drug was Administered	Amount of Drug in Body (mg)
0	1000
5	550
10	316
15	180
20	85
25	56
30	31

a. Find the best-fit model for the drug absorption data. (12)
b. Predict the amount of drug in body (mg) after 40 hours. (3)