

Math 120 – Exponential Models Test Prep – Dr. Loveless

Take 5 minutes to try to **start** this problem and find the model part(a). After 5 minutes compare with a classmate and your TA. Then discuss the solution with your TA. Please move on to homework questions after 10 minutes. I'll post solutions to this after quiz section.

Participation Code: The participation code for today is the second perfect number

(First perfect number is 6, the second is smaller than 30, you'll either have to look it up or ask your TA. You don't need to know perfect numbers for this class; I'm running out of participation code ideas)

[F07 Final Exam Question]

Problem 2: The technicians at Hanford put 15 grams of plutonium-238 in Vat #43 back in 1982. In 2007, a clean-up crew checked the vat and found that 8 grams of plutonium-238 remained. This is because radioactive materials decay exponentially with time. The crew closed the vat and left it alone.

(a) Find an exponential function $y = a \cdot b^t$ that gives the amount y of plutonium-238, in grams, as a function of the years t since 1982. (i.e. take $t = 0$ to be 1982).

(b) How much plutonium-238 was left in the vat in 1996?

(c) In what year will there only be 2 grams of plutonium-238 left?