Name: _____ Block: _____ Date: _____

LESSON 11.3 NOTES

(APPLICATION PROBLEMS BASED ON LESSON 11.2)

A manufacturer calculates that the lifetime of his laptop batteries is normally distributed with a mean life of 28 months and a standard deviation of 7.5 months. The manufacturer gives a 12-month guarantee on each battery.

a. What is the probability that a battery will last at least 28 months?

lower : 28
upper : 1×10^{99}
μ : 28
σ : 7.5

$P(X \geq 28) \approx$ 0.5 or 50%

b. What is the probability that a battery will last more than 38 months?

$P(X > 38) =$ normalcdf$(38, 1 \times 10^{99}, 28, 7.5)$
$=$ 9.12% or 0.0912

c. What is the probability that a battery will last less than 12 months?

lower : -1×10^{99}
upper : 12
μ : 28
σ : 7.5

$P(X < 12) =$ 1.64% or 0.0164

d. The manufacturer makes 5000 batteries each month. How many batteries can he expect will be returned under the terms of his guarantee?

$5000(.0164) =$ 82