

Answer on Question #40985, Math, Statistics and Probability

Question:

if the mean lifespan of an insect is 144 days and the standard deviation of its lifespan is 16 days find the probability that the next insect studied lives less than 140 days

Solution:

We have normal distribution with mean 144 and standard deviation – 16:

$$m = 144$$

$$\sigma_1 = 16$$

And we need to know:

$$P(x < 140)$$

Or we can write it as $P(x < 144 - 0.25 * 16)$ and find value of this probability using the table

<http://www.stat.tamu.edu/~lzhou/stat302/standardnormaltable.pdf>

for $z = -0.25$

So, probability equals

$$P(x < 140) = P(x < 144 - 0.25 * 16) = P(z = -0.25) = 0.40129.$$

Answer: 0.40129.