Laying eggs...



Could it be normal?

Use the data summary below, Loggerhead (*Caretta caretta*) sea turtle nesting dates along Jupiter-Carlin Beach from 2010-2015, to complete the following tasks.

Nesting Date Window	Interval for the Day of the Year	Mid-Interval Day of the Year	Number of Observed Nests (Frequency)	Cumulative Frequency
April 1-15	91 – 105	$\frac{91+105}{2} = 98$	1	1
April 16-30	106 – 120	$\frac{106+120}{2} = 113$	41	41 + 1 = 42
May 1-15	121 – 135		409	
May 16-31	136 – 151		1243	
June 1-15	152 – 166		1438	
June 16-30	167 – 181		1446	
July 1-15	182 – 196		1499	
July 16-31	197 – 212		1113	
August 1-15	213 – 227		401	
August 15-31	228 – 243		94	
September 1-15	244 – 258		8	
September 15-30	259 – 273		2	

1. Complete the table by filling in the mid-interval value and the cumulative frequency for each range of dates.

2. Create a histogram to represent the data set. Sketch the histogram below.

3. Create a cumulative frequency diagram (ogive) to represent the data set. Sketch the diagram below.

- 4. Analyze the histogram to see what can be learned about the center and variation of the number of nests.
 - a. Estimate the mean using mid-interval values.
 - b. Estimate the standard deviation.
 - c. What is the shape of the distribution?
- 5. Determine whether the data can be considered normally distributed. Tell why or why not.

Name:

Using the Normal Distribution and its Properties



The nesting days for Loggerhead sea turtles along Jupiter-Carlin beach are normally distributed with a mean (μ) of the 174th day of the year and a standard deviation (σ) of 25.9 days.

- 1. Calculate the probability the following will occur:
 - a. $P(x \le 183)$
 - b. $P(141 \ge x \ge 183)$
 - c. P(x = 205)
- 2. Find the day of the year when the probability of a Loggerhead nesting is 45%.

The length of Loggerhead sea turtle shells are normally distributed and 20% of the sea turtles along the coast have a shell length less than 85 cm and 10% greater than 103 cm.

- 3. Sketch a diagram of the normal curve with the above information clearly labelled.
- 4. Using z-scores, find the mean and standard deviation for the length of the sea turtle shells along this coastline.