Secondary Math 3 Honors

7-5 Practice: Margin of Error and Confidence intervals

You want to estimate the average height of men at our school. To do so, you took a SRS of 36 boys and found an average height of 65 inches. The samples standard deviation is 2 inches and height does follow an approximately normal distribution.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Construct and interpret a 95% confidence interval for the true height of men at our school. |  | Construct and interpret a 68% confidence interval for the true height of men at our school. |
|  | * 1. Observing #1 and #2, explain how the confidence level relates to the size of your confidence interval.
	2. Describe two ways you could end up with a smaller confidence interval.
 |

**Review Problems:**

|  |  |
| --- | --- |
|  | For a standard normal curve, draw and shade in the given region.1. Find the proportion of observations that fall into the region $-2<z<2$.
 |

1. Express the solution to $4^{2t}=6$ as a logarithm.

**Margin of error**

1. Explain what margin of error is in your own words.
2. For a normal distribution, what would the critical value (number of standard deviations away) need to be if we wanted to construct a 99.7% confidence interval?
3. There is a way to find the critical value for any confidence level that you want. You could work backward on Table A, or using your calculator, there is operation called INVNORM. Both of these work backward from the area under the curve and tell you the values which create the two boundary points. Try looking at Table A and figure out how to do this. Explain your method by working through a sample problem of your choosing.