

Answer on Question #48469 – Math – Statistics and Probability

Assume that final grades in your math class have a mean of 72 and a standard deviation of 8. If the bottom 15% of class will be given an F, what is the cutoff for an F?

Solution

We know that

$$P(X > X_{\text{cutoff}}) = P(z > z_{\text{cutoff}}) = 1 - P(z < z_{\text{cutoff}}) = 0.15 \rightarrow P(z < z_{\text{cutoff}}) = 0.85.$$

From z-table we know

$$P(z < 1.03) = 0.8485 \text{ and } P(z < 1.04) = 0.8508.$$

Interpolating between these points, we get

$$z_{\text{cutoff}} = 1.03 + \frac{0.85 - 0.8485}{0.8508 - 0.8485}(1.04 - 1.03) = 1.037.$$

The cutoff for an F is

$$X_{\text{cutoff}} = \mu + z_{\text{cutoff}} \cdot \sigma = 72 + 1.037 \cdot 8 = 80.3.$$

Answer: 80.3.