Question #15219 The mean math score on the SAT in 2010 was M=516. A student obtains a score of X=483. The college admissions office looks at how you perform relative to the class overall. Would it be better for the student if the standard deviation of the math scores was s=15 or s=75? Explain. (Hint: explain mathematically using z-scores.)

Solution. Denote by z_1 and z_2 z-scores, when $s = 15$ and $s = 75$ respectively. $z_1 = \dfrac{483 - 516}{15} < -2$, hence with the probability 0.95 the score of a mean math student is outside of the range and so is not typical in the bunch of scores. In case $z_2 = \dfrac{483 - 516}{75} \in [-2, 2]$ we have that the result of that math student is close to the mean. To conclude, it would be better for him if $s = 75$.