

MA103: Mathematical Modeling & Intro to Calculus

Descriptive Modeling of a Data Point 1

Lesson Objectives: Cadets will

1. calculate z-scores and interpret them as measures of relative standing.
 2. standardize datasets and identify usual and unusual data.
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Admin Notes / Agenda

- Sit in groups - when are you meeting out of class? Agree to a time / location and record here.
- Data set assigned is team number.
- Graded event questions: Scavenger hunt / PSL 1 / Project 1
- Lesson review - Instructor: how to count in excel (COUNTIF).
- Greatest of All Time Exercise - Lets write our GOATs on the board and brain storm

Who / What is your GOAT? Where are you going to collect data, what type of data are you going to collect? How can we compare your GOAT to peers - quantitatively?

Measure of Relative Standing: Z-Score (standardized value)

- Formula for a z-score:
- What does a z-score tell us?
- Z-scores are also called *standardized values*, what are we standardizing with respect to? How does this affect our interpretation of a z-score?
- How can we use z-scores as measures of relative standing? How do they help us “tell the story” of a data point?

- Standardize the following data and assess possible unusual data points. Who is overall the strongest swimmer? Who is the weakest swimmer? How can you tell using z-score as a measure of relative standing?

ID	400m Swim Time (min)	Standardized Swim	Max Water Tread Time (min)	Standardized Tread
A01	8.45		12	
A02	9.10		10	
A03	5.10		35	
A04	11.25		7	
A05	8.55		13	