C3 Trimmed Mean

- calculate trimmed mean
- justify removal of outliers

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Range & Outliers

Range: the difference between the largest value and the smallest value of a data set.

= largest value - smallest value

Outlier: a value that is much smaller or larger than the other data values. May be none, one, or more than one outlier.

Example: Determine the range and outliers for each data set.

a) Points per Game: 16, 14, 18, 20, 44, 15, 18, 5, 16

b) Annual Snowfall (cm): 120, 115, 123, 118, 122, 115

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Practice (Board Work)

The table below shows the NHL point leaders for two seasons. (MathAtWork12 pg. 82)

1985–1986 Season	Points	2010–2011 Season	Points
Gretzky	215	D. Sedin	104
Lemieux	141	St. Louis	99
Coffey	138	Perry	98
Kurri	131	H. Sedin	94
Bossy	123	Stamkos	91
Stastny	122	Iginla	86
Savard	116	Ovechkin	85

a) Determine the range, mode, median, and mean of the data for each season.

b) Which data value appears to be an outlier in one of the two seasons? Explain what might have caused the outlier.

c) Remove the highest and lowest value for each season and calculate the mean using the remaing values. This is called the trimmed mean.

How does the trimmed mean for each season compare to the mean calculated in part a)?

d) Does removing the highest and lowest values affect the mode and the median? Explain.

e) Should the outlier be removed? Explain why or why not.

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Trimmed Mean

Trimmed Mean: a calculation of the mean after removing the highest and lowest values.

you must remove the same # of values from the top and bottom of the data set.

removal of outliers may result in a more accurate mean.

Example: Determine the mean and trimmed mean for the # of points per game.

Points per Game: 16, 14, 18, 20, 44, 15, 18, 5, 16

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Practice (Mini-Boards)

Judges in a gymnastics competition gave the following scores, in points, to 14 competitors: 8.5, 9.0, 6.9, 7.5, 7.0, 9.5,10.0, 5.0, 8.0, 8.0, 7.5, 7.5, 6.8, 6.8.

(MathAtWork12 pg. 84)

a) Determine the range.

b) Determine the mode, median, and average, to one decimal place.

c) Identify any outlier(s). What might have caused the outlier(s)?

d) Remove the lowest and highest scores and calculate the trimmed mean.

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Practice (Text)

pg. 85-86: 1-5

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