

Trimmed Mean Practice Problems

Key

1. Choose the letter that best completes the statement below.

Trimming the highest and lowest values of a large data set will cause the median to:

- a) increase
 - b) decrease
 - c) stay the same
 - d) change, but it is impossible to tell by how much
2. Hayden is a competitive diver. On his first dive, Hayden receives the following scores from the judges:

6.5 6.5 6.5 6.0 7.0 6.5 9.5

low

high

- a) Calculate the trimmed mean by removing the highest and lowest scores.

$$\frac{6.5 + 6.5 + 6.5 + 7.0 + 6.5}{5} = \underline{\underline{6.6}}$$

- b) Explain the effect of removing the highest and lowest diving scores on Hayden's mean score.

will be closer to mode of 6.5.

mean is actually 6.9

Trimmed Mean Practice Problems

3. Given the following salaries:

\$100 000	\$45 000.	\$35 000	\$40 000	\$33 000
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a) Calculate the mean.

$$\frac{253000}{5} = \underline{\underline{\$50,600}}$$

b) Calculate the trimmed mean by removing the highest and lowest salaries.

$$\frac{253000 - 33000 - 100000}{3} = \underline{\underline{\$40000}}$$

4. Choose the letter that best completes the statement below.

Removing a low outlier:

- a) decreases the mean
- b) increases the mean
- c) has no effect on the mean
- d) decreases the median

Trimmed Mean Practice Problems

5. Environment Canada recorded the following maximum daily temperatures for Thompson for one week in October 2016.

Maximum Daily Temperature						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1.70°C	3.40°C	-5.90°C <i>Low</i>	0.10°C	1.80°C	7.10°C <i>High</i>	2.60°C

- a) Calculate the mean temperature for the week.

$$\frac{1.70 + 3.40 + -5.90 + 0.10 + 1.80 + 7.10 + 2.60}{7} = \frac{10.8}{7} = \underline{\underline{1.54^\circ\text{C}}}$$

- b) Calculate the trimmed mean temperature for the same week by removing the highest and lowest temperatures.

$$\frac{10.8 - -5.90 - 7.10}{5} = \underline{\underline{1.92^\circ\text{C}}}$$

6. Choose the letter that best completes the statement below.

Removing a high outlier:

- a) increases the mean
- b) lowers the mean
- c) has no effect on the mean
- d) increases the median

Trimmed Mean Practice Problems

7. The following table shows the amount of bushels per ton of various crops grown in Manitoba.

Crop	Bushels per Ton
Barley	45.93
Corn	39.37
Oats	68.89 <i>high</i>
Soya beans	36.74 <i>> lows</i>
Wheat	36.74
Sunflower	73.49 <i>high</i>
Canola	44.09

Calculate the trimmed mean (bushels per ton) of the various crops by eliminating the two highest and the two lowest values.

$$\frac{45.93 + 39.37 + 44.09}{4}$$

8. The test results from Jeremy's Statistics course are listed below.

Test Results	50%	65%	70%	95% <i>high</i>	40% <i>low</i>	55%
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His final grade in the course will be calculated using a trimmed mean.

Calculate Jeremy's final grade after eliminating his highest and lowest test mark.

$$\frac{50 + 65 + 70 + 55}{4} = \frac{240}{4} = \underline{\underline{60\%}}$$

Trimmed Mean Practice Problems

9. Braedon is a Winnipeg real estate agent who has sold 6 houses in the last 5 weeks. The selling prices were as follows:

\$250 000	\$375 000	\$1 877 000	\$275 000	\$87 000	\$400 000
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- a) State the mean.

$$\frac{3264000}{6} = \underline{\$544000}$$

- b) State the trimmed mean by removing the highest and lowest values.

$$\frac{3264000 - 87000 - 1877000}{4} = \underline{\$325000}$$

- c) Justify which mean would be a better indicator of the average selling price of a house in Winnipeg.

trimmed because outliers are so low and so high compared to others.

Trimmed Mean Practice Problems

10. Jimbo has the following marks on his tests:

41%	78%	84%	69%	75%
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- a) Explain why he might ask that his test mark be calculated using a trimmed mean.

to get rid of the 41%.

- b) Calculate his trimmed mean if the teacher agrees and trims his highest and lowest test marks.

remove 84 and 41.

$$\frac{78 + 69 + 75}{3} = \underline{\underline{74\%}}$$

11. Calculate the trimmed mean by eliminating the highest and the lowest number for the following set of data.

29	61	87	64
53	90	82	46
70	78	76	73

$$\frac{690}{10} = \underline{\underline{69}}$$