

Method of Limits Worksheet

Name: _____

Date: _____

Trial #	Upper Threshold	Lower Threshold
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Sum		
Mean		

Question 1: What is the upper threshold of Trial #1?

Question 2: Compute the mean upper threshold.

Question 3: Compute the mean lower threshold.

Question 4: Compute the interval of uncertainty (IU).

Question 5: Compute the just noticeable difference (JND).

Question 6: Compute the point of subjective equality (PSE).

Question 7: How does the mean of all the “equal to” responses compare to the PSE?

- A. The mean is smaller.
- B. They are equal.
- C. The mean is larger.

Question 8: Is there an error of expectation, habituation, or neither?

- A. Expectation.
- B. Habituation.
- C. Neither.

Question 9: If one subject made only one “equal to” response on each trial and a second subject averaged seven “equal to” responses on each trial, then which subject would produce the bigger JND?

- A. The first subject.
- B. The second subject.
- C. Both JNDs would be equal.

Question 10: If there are an equal number of ascending and descending trials, which subject, from Question 9, would produce the bigger PSE?

- A. The first subject (1 “equal to” response per trial).
- B. The second subject (7 “equal to” responses per trial).
- C. Both PSEs would be equal.

Method of Constant Stimuli Worksheet

Name: _____

Date: _____

Since it may be difficult to give exact answers from reading the graph, for this method an acceptable correct answer has a range of ± 0.5 .

All questions may be answered by referring to the graph of your data.

Question 1: Estimate the point of subjective equality (PSE) from the graph.

Question 2: Estimate the upper threshold (UT) from the graph.

Question 3: Estimate the lower threshold (LT) from the graph.

Question 4: Estimate the interval of uncertainty (IU) from the graph.

Question 5: Estimate the just noticeable difference (JND) from the graph.

Question 6: Imagine that a left-handed subject tended to choose the “longer” response whenever the two stimuli seemed almost equal. How would this alter the PSE compared to a subject without this bias?

- A. It would be larger.
- B. It would be smaller.
- C. It would be the same.

Question 7: In the ideal data, $UT - PSE$ and $PSE - LT$ are equal. For your data, calculate $UT - PSE$.

Question 8: In the ideal data, $UT - PSE$ and $PSE - LT$ are equal. For your data, calculate $PSE - LT$.

Question 9: UT-PSE and PSE-LT are both estimates of the “true” JND. Is the mean (average) of these two estimates equal to the JND computed in question 5? (Answer Yes or No.)

Method of Adjustment Worksheet

Name: _____

Date: _____

For this method, your answers should be rounded off to one decimal place. Please be aware that answers may differ slightly if the rounding procedure is different.

Trial #	Length	(Length - Mean)	(Length - Mean) ²
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Sum			
Mean	Std. Dev.	JND	

Question 1: Compute the mean of your data.

Question 2: Compute the standard deviation.

Question 3: Compute the just noticeable difference (JND).

Question 4: Compute the point of subjective equality (PSE).

Question 5: Compute the upper threshold (UT).

Question 6: Compute the lower threshold (LT).

Question 7: Compute the interval of uncertainty (IU).

Question 8: Which one of the following reflects how unreliable or variable your responses were?

- A. UT and LT.
- B. PSE.
- C. UT or LT.
- D. JND and IU.

Question 9: If 10 units were added to each of your adjustments, which of the values you have calculated would not change?

- A. PSE.
- B. JND.
- C. UT.
- D. All would change.
- E. None would change.

Question 10: In the method of adjustment, the comparison stimulus starts obviously “longer” or “shorter” than the standard stimulus. Imagine that all the trials started with the obviously “longer” stimulus and that the subject had a tendency to leave their finger on the arrow key too long (i.e., an error of habituation). Which of the following would occur?

- A. JND would increase.
- B. JND would decrease.
- C. PSE would increase.
- D. PSE would decrease.

Weber's Law Worksheet

Name: _____

Date: _____

Answer all of the questions by referring to the graph of your data or the table below.

Standard Number	Standard Size	PSE	JND
1			
2			
3			

Question 1: Calculate the slope of the best fitting line drawn through the data.

Question 2: Calculate the Weber fraction.

Question 3: Is your variable error larger for larger stimuli? (Y/N).

Question 4: Are you more precise when judging larger stimuli? (Y/N).

Question 5: In general, does accuracy increase when judging smaller stimuli? (Y/N).

Question 6: According to Weber's Law, for which weight would you be most likely to notice the addition of ten grams? (Weber fraction for weight is 0.07).

- A. 1 Kilogram.
- B. 2 Kilogram.
- C. 3 Kilogram.

Question 7: Assume that a weight discrimination experiment produced the following results:

Standard Stimulus	JND
50 g	2 g
100 g	4 g
200 g	8 g

According to Weber's Law, how large should the JND be for the standard stimulus of 400 g?

- A. 10 g.
- B. 12 g.
- C. 16 g.

Question 8: Consider redoing the tutorial experiment with the Method of Constant Stimuli using 14 different comparison stimuli with the same stimulus value range for the three different line lengths. Assume that the shortest comparison stimulus produced 20% "longer" responses for the shortest comparison stimulus and 85% for the longest. If Weber's Law holds, can the comparison stimuli range be the same for the longer lengths of lines? (Y/N).

Mueller-Lyer Illusion Worksheet

Name: _____

Date: _____

Answer all of the questions by referring to the table below.

Condition Number	Standard	JND	PSE	POE
1	>-----<			
2	I-----I			
3	<----->			

Question 1: Does the direction of the arrows affect the size of the point of subjective equality (PSE)? (Y/N).

Question 2: Compute the constant error for condition #1.

Question 3: Compute the constant error for condition #2.

Question 4: Compute the constant error for condition #3.

Question 5: For which condition are you most accurate?

Question 6: In which condition are you most precise?

Question 7: An experimenter found a constant error of 5 in a condition A and -5 in a condition B. In which condition were subjects more accurate?

- A. Condition A.
- B. Condition B.
- C. The conditions are equally accurate.

Question 8: In an experimental procedure using only descending trials, subjects displayed a positive constant error. What is the probable cause of these results?

- A. An illusion.
- B. An error of expectation.
- C. Both are possible.