

Geometers Sketchpad Labs 6 and 7 Grading Rubric

Name: _____

Score: _____/40

Hour: _____

I. Lab 6 – Equidistance Sketches

- 14 Both sketches are properly constructed (they hold their shape when vertices are dragged) with correct labels and measurements.
 - 12 Both sketches are properly constructed, but one lab is missing critical labels or measurements.
 - 10- 8 Only one sketch is properly constructed, correct labels and measurements are included.
 - 6 Errors exist in the construction of both labs.
- _____ - Other: _____

II. Lab 6 – Equidistance Theorems

- 6 Both theorems are properly displayed in text box and are written using proper spelling, punctuation and grammar.
 - 5 - 4 Both theorems are properly displayed in a text box with some errors in spelling, punctuation or grammar.
 - 3 - 2 Only one theorem is displayed in a text box and is written using proper spelling, punctuation and grammar.
- _____ - Other: _____

III. Lab 7 – Parallel lines Sketch

- 14 Parallel lines and transversal are properly constructed. All 8 angles are measured and displayed. All pairs of angles are shown to be either supplementary or congruent.
 - 12-10 Parallel lines and transversal are properly constructed. One or more pairs of supplementary or congruent angles are not shown.
 - 8 Parallel lines and transversal are improperly constructed. All 8 angles are measured and displayed. All pairs of angles are shown to be either supplementary or congruent.
 - 6 Parallel lines and transversal are improperly constructed. One or more pairs of supplementary or congruent angles are not shown.
- _____ - Other: _____

IV. Lab 7 – Parallel lines Theorems

- 6 All theorems and their converses are properly displayed in text box and are written using proper spelling, punctuation and grammar.
 - 4 Some theorems and their converses are properly displayed in text box and are written using proper spelling, punctuation and grammar.
 - 3 The theorems w/o converses are displayed in a text box and are written using proper spelling, punctuation and grammar.
- _____ - Other: _____

Sketch 1

Construct a segment connecting A & B. Use A & B as centers for two circles. Construct circles large enough to intersect each other at two different points, P & Q. Construct and measure segments and angles as shown in the example at right.

- A. A is equal distance away from what two points?
- B is equal distance away from what two points?

Construct PQ. Label the intersection of the diagonals as M.

- B. What would you call M?
- C. What are the measures of the angles formed by the diagonals?
- D. Reread question A and use it to complete a **possible theorem** that explains how to create the perpendicular bisector of a segment. (Use the word "equidistant".)

Type the heading in the upper left corner of the diagram, including lab title. Organize and label measures of segments and angles. Follow this example:

Stu Dent
T. Chur
Adv Geo - period 0
Date

Lab 6: Equidistance, Sketch 1

Quadrilateral Sides
 $m \overline{AP} = 7.42 \text{ cm}$
 $m \overline{QA} = 7.42 \text{ cm}$
 $m \overline{BQ} = 4.94 \text{ cm}$
 $m \overline{PB} = 4.94 \text{ cm}$

Diagonals & their parts
 $AB = 9.61 \text{ cm}$
 $AM = 6.40 \text{ cm}$
 $MB = 3.20 \text{ cm}$
 $PQ = 7.51 \text{ cm}$
 $PM = 3.75 \text{ cm}$
 $MQ = 3.75 \text{ cm}$

Angles formed by the diagonals
 $m \angle AMP = 90.00^\circ$
 $m \angle AMQ = 90.00^\circ$
 $m \angle BMP = 90.00^\circ$
 $m \angle BMQ = 90.00^\circ$

Lab Questions
 A. A is equidistant from _____ & _____.
 B.
 C.
 D.

In GSP, use the print preview to fit to page. Then print your work when lab is completed.

Sketch 2

Directions: Construct a segment connecting any points A & B. Construct the midpoint of \overline{AB} and then the line perpendicular through the midpoint, X1 (i.e., the \perp bis). Construct any three other points on the \perp bis and label them X2, X3, & X4. Construct the segments \overline{AX} & \overline{BX} and measure their lengths.

- A. Write the lengths of these segments? How do they compare?

Directions. Now drag point X somewhere else on the perpendicular bisector line.

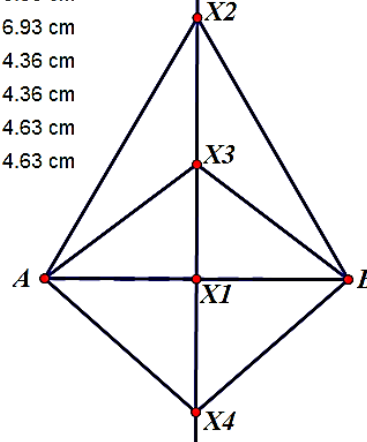
- B. Now what are the distances from X to points A & B?
- C. Move point X up and down along the perpendicular bisector watching the two distances. Use the word, "equidistant" to complete the **possible theorem**:
If a point is on the \perp bisector of a segment then

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Date

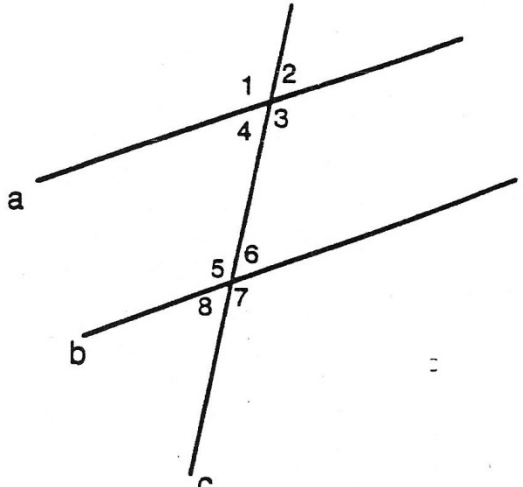
Lab 6: Equidistance, Sketch 2

- $m \overline{AX1} = 3.48 \text{ cm}$
- $m \overline{X1B} = 3.48 \text{ cm}$
- $m \overline{X2A} = 6.93 \text{ cm}$
- $m \overline{X2B} = 6.93 \text{ cm}$
- $m \overline{X3A} = 4.36 \text{ cm}$
- $m \overline{X3B} = 4.36 \text{ cm}$
- $m \overline{AX4} = 4.63 \text{ cm}$
- $m \overline{X4B} = 4.63 \text{ cm}$

- Lab Questions*
 A.
 B.
 C.



Print preview, fit to page, then print when lab is completed.

<p>Definitions:</p> <p>transversal: a line that intersects two coplanar lines at two distinct points. (c is a transversal in this diagram.)</p> <p>alternate interior angles: a pair of \angles on alternate sides of the transversal "between" the other 2 lines. Angles 3 and 5, 4 and 6 in the diagram.</p> <p>alternate exterior angles: Angles 1 and 7, 2 and 8</p> <p>corresponding angles: a pair of \angles in matching positions in each intersection group. Angles 1 & 5, 2 & 6, 4 & 8, 3 & 7.</p> <p>interior angles on the same side of the transversal: Angles 4 & 5, 3 & 6.</p> <p>exterior angles on the same side of the transversal: Angles 1 & 8, 2 & 7.</p> <p>Directions: Construct a diagram similar to the one at the right so that lines a and b are parallel to each other. Find the slopes of the lines and the measures of angles 1-8 and label them on the diagram in section 1 at the right.</p>	<p>1. Label the eight angle measures and the slope of each line on this diagram!</p> 
<p>2. Drag the transversal and the first line you drew to create different shaped angles in your diagram. Sketch your new diagram below and write in the new measures for the eight angles.</p>	<p>3. Compute the sums of the measures of the pairs shown below. Use the drag feature to see if these sums change or remain constant. Write the sums below.</p> <p>Sum of $\angle 1$ and $\angle 8$:</p> <p>Sum of $\angle 4$ and $\angle 5$:</p> <p>Sum of $\angle 2$ and $\angle 7$:</p> <p>Sum of $\angle 3$ and $\angle 6$:</p>

4. Questions

Use the diagrams in 1 & 2 above to complete the following possible theorems:

If two parallel lines are intersected by a transversal, ...

- A. then alternate interior angles are _____
- B. then alternate exterior angles are _____
- C. then interior angles on the same side of the transversal are _____
- D. then exterior angles on the same side of the transversal are _____
- E. then corresponding angles are _____
- F. Would any of the possible theorems in problems 1-5 be true if the two lines were not ||? _____
- G. Given that the theorems 1-5 have true converses, type the 5 theorems on your GSP work. Each theorem should have the form:
If 2 lines are intersected by a transversal such that ____? ____, then the two lines are ||.