**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_**

**U2 CWK # 2** *Parallel Lines and Transversals*

Use the picture given below to describe what parallel lines are. Use the correct notation to denote that line *l* is parallel to line *m*.

Draw a transversal for the two parallel lines above and label it line *t*. Label the angles formed by the transversal and the parallel lines with numbers 1 through 8.

\*Be sure to number in the same order as your teacher.

Transversals that intersect two or more parallel lines create angle pairs that have special properties.

1. What type of angle pair is and ? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Copy on a piece of tracing paper (or patty paper). Move the tracing paper to .

What do you notice about the measures of and ?

1. Listing the remaining pairs of corresponding angles from the figure above. Use a similar process to see if the same outcome holds true for all of the corresponding angles in the figure.
2. List the pairs of angles that are vertical angles, what do you know about vertical angles? (You learned this in 7th grade!!!) Use the tracing to check you thoughts.
3. Use the same process to discover other relationships that exist between alternate interior angles and alternate exterior angles. Be sure to provide justification for your claims.
4. Complete the following statements in the box below.

**Properties of Transversals to Parallel Lines**

If two parallel lines are intersected by a transversal,

* Corresponding angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Alternate interior angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Alternate exterior angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

In any set of lines that intersect,

* Vertical angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

In the diagram below one angle measure is given. Find the measure of each remaining angle if line *l* is parallel to line *m*. Be sure to show your thinking.



|  |  |  |
| --- | --- | --- |
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|  |  |  |
|  |  |  |

1. Line *f* line *g* and one angle measure is given in the diagram. Determine the measures of the remaining angles in the diagram below. Be sure to show your thinking.

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

2. Given that line line *m* solve for *x* and then find the measure of all the remaining angles.

Write the angle measures on the picture. Show ALL work.

|  |  |
| --- | --- |
|  | 1. ­   ­­­ ­­ |
|  |  |

Given the lines *j* and *k* in a picture below with transversal *l* devise a strategy to determine whether the two lines are parallel using what you know about angles and transversals. Draw a transversal for lines *d* and *e* and use your strategy to determine whether they are parallel. Justify your findings in a complete sentence under each figure. (\*\*Stating that the lines do not look parallel, is not a justification.)

* 1. b.

Complete the statement below.

**Given two lines, if a transversal cuts through both lines so that corresponding angles**

**are\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the two lines are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

Determine whether the following sets of lines are parallel or not. Provide a justification.

|  |  |
| --- | --- |
| * 1. Is *p* parallel to *q*? Why or why not? | * 1. Is *m* parallel to *n*? Why or why not? |