Name _____

Date _____

EXPLORATIONS

Activity 2

Properties of Parallel Lines Cut by a Transversal

Construct the geometric object by following the instructions below, and then answer the questions about the object.

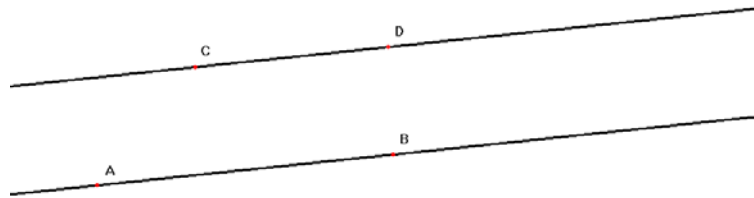1. Create two parallel lines and label as shown in Figure 2.1.

Figure 2.1

2. Create a transversal.

   a. From the Lines Toolbar, select **Line**.

   b. Move pointer to line $\overline{AB}$ between points A and B, until the message *On this line* appears. Click once and type T.

   c. Drag to line $\overline{CD}$ between points C and D, until the message *On this line* appears. Click once.

   d. Move the pointer until the message *At this intersection point* appears. Click once and type X.

   e. From the Points Toolbar, select **Point On Object**.

   f. Move pointer to line $\overline{TX}$ below line $\overline{AB}$ until the message *On this line* appears. Click once and type R.

g. Place another point on line $\overline{TX}$ above line $\overline{CD}$. Label this point S.
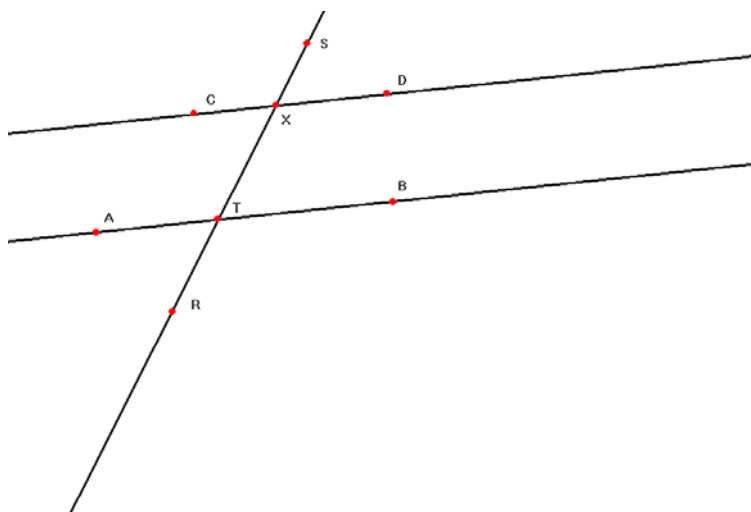

Figure 2.2

3. Measure and label angle measurements.

a. On the measures toolbar, click **Angle**.

b. Click on a point on one side of the angle, then click on the vertex, then click on a point on the other side of the angle.

c. When the flashing bar appears, type in the name of the angle.

4. Complete this table with the corresponding angle measures.

Pair of angles	Type of angles (corresponding, alternate interior, same side interior, alternate exterior)	Measurement of the Angles
$\angle CXS$ and $\angle ATX$	corresponding	100° and 100°

5. What can you conclude about the corresponding angles of two parallel lines cut by a transversal?

    _____

6. What can you conclude about the alternate interior angles of two parallel lines cut by a transversal?

    _____

7. What can you conclude about the same side interior angles of two parallel lines cut by a transversal?

    _____

8. What can you conclude about the alternate exterior angles of two parallel lines cut by a transversal?

    _____

9. Alter the measure of the angles.

    a. On the Pointer Toolbar, click **Pointer**.

    b. Move the pointer to point T or x until the message ***This point*** appears. Click once and drag.

10. Do any of the conclusions change?

    _____

    _____

    _____

11. Alter the measures several times to confirm the conclusion.