

Lesson 1.4 Constructions

Objective

- Construct a line parallel to a given line that passes through a point not on the given line.

The construction in the following activity is produced using only a straightedge and a compass. Neither the straightedge nor the compass has a measurement scale. Use the straightedge to draw lines and segments. Use the compass to draw arcs.

Construction 7 Parallel to a Line at a Point Not on the Line

- 1 Draw line n . Locate point P not on n .
- 2 Use your straightedge to draw a line that passes through P and intersects n . Label the point where the lines intersect, point K .
- 3 Open the compass so that its width is about half the distance of \overline{PK} . Place your compass point on K . Draw an arc that intersects both line n and \overline{PK} . Label the intersection point on \overline{PK} , point A , and the intersection point on line n , point B .
- 4 Do not adjust your compass width. Place the compass point on P , and draw an arc that is almost the length of a semicircle and intersects \overline{PK} above P . Label this point C .
- 5 Open your compass so that its width is equal to the length of \overline{AB} . Place the compass point on C . Draw an arc that intersects the arc drawn in Step 4. Label the point of intersection, point D .
- 6 Use a straightedge to draw a line through points P and D . Line PD is parallel to line n .

