7. a. Find the slope of $\overleftrightarrow{AB}$.
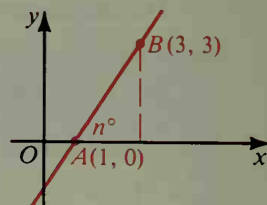 **b.** Find tan $n°$.
  c. Consider the statement: If a line with positive slope makes an acute angle of $n°$ with the x-axis, then the slope of the line is tan $n°$. Do you think this statement is true or false? Explain.

8. This exercise provides a geometric method of justifying the fact that you can use any two points on a line to determine the slope of the line. Horizontal and vertical segments have been drawn as shown. Supply the reason for each step.
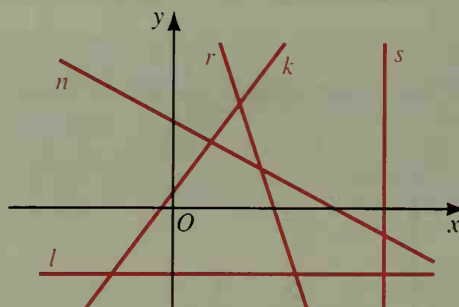
Key steps of proof:

1. $\angle B \cong \angle A$
2. $\angle 1 \cong \angle 2$
3. $\triangle LBN \sim \triangle DAJ$
4. $\dfrac{BN}{AJ} = \dfrac{LB}{DA}$, or $\dfrac{BN}{LB} = \dfrac{AJ}{DA}$
5. The slope of $\overline{LN}$ equals $\dfrac{BN}{LB}$, and

   the slope of $\overline{DJ}$ equals $\dfrac{AJ}{DA}$.
6. Slope of $\overline{LN}$ = slope of $\overline{DJ}$
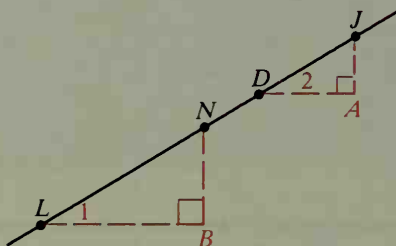
Written Exercises

A **1.** Name each line in the figure whose slope is:
  a. positive
  b. negative
  c. zero
  d. not defined

2. What can you say about the slope of **(a)** the x-axis? and **(b)** the y-axis?

Find the slope of the line through the points named. If the slope is not defined, write *not defined*.

3. $(1, 2)$; $(3, 4)$ **4.** $(1, 2)$; $(-2, -5)$ **5.** $(1, 2)$; $(-2, 5)$

6. $(0, 0)$; $(5, 1)$ **7.** $(7, 2)$; $(2, 7)$ **8.** $(3, 3)$; $(3, 7)$

9. $(6, -6)$; $(-6, -6)$ **10.** $(6, -6)$; $(4, 3)$ **11.** $(-4, -3)$; $(-6, -6)$

Find the slope and length of $\overline{AB}$.

12. $A(3, -1)$, $B(5, -7)$ **13.** $A(-3, -2)$, $B(7, -6)$

14. $A(8, -7)$, $B(-3, -5)$ **15.** $A(0, -9)$, $B(8, -3)$