

Section 3.5
Parallels and Distance

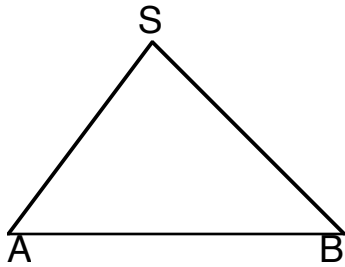
Objective To recognize and use distance relationships among points, lines, and planes.

Definition of the Distance Between a Point and a Line The distance from a line to a point not on the line is the length of the segment perpendicular to the line from the point.

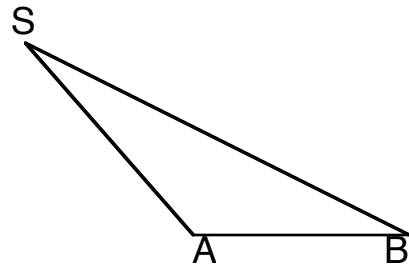
Example 1

Draw the segment that represents the distance from S to \overline{AB} .

a.



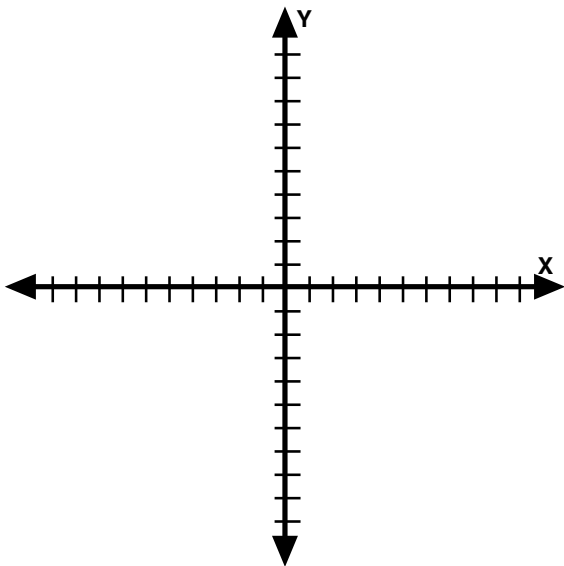
b.



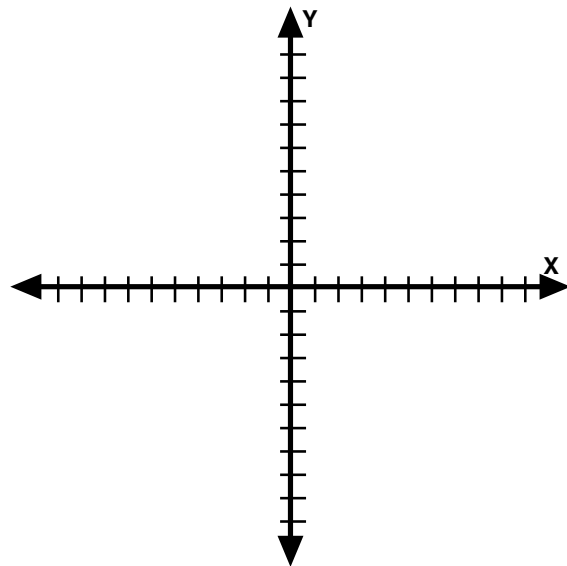
Example 2

Find the distance from the point to the line.

a. $2x - y = 3$, $(2,6)$



b. $2x - 3y = -9$, $(2,0)$



Definition of the Distance Between Parallel Lines

The distance between two parallel lines is the distance between one of the lines and any point on the other line.

Example 3

Find the distance between the parallel lines whose equations are $y = x + 6$ and $y = x - 10$

