**6.2 – Slopes of Parallel and Perpendicular Lines**

The slopes of two parallel lines are the same. Congruent triangles can be drawn to show the rise and run.

The slopes of two oblique ***perpendicular*** lines are ***negative reciprocals***; that is, a line with a slope *m* is perpendicular to a line with a slope $-\frac{1}{m}$; *m≠* 0.

**Example 1: Identifying Parallel Lines**

Line EF passes through E(-4, -3) and F(0, 3).

Line PQ passes through P(-3, -5) and Q(2, 3).

Line RS passes through R(0, -3) and S(4, 3).

Are the lines parallel?

Graph the lines:

Find the slopes to verify.

EF: PQ: RS:

**Example 2: Identifying Perpendicular Lines**

Line EF passes through E(-1, -1) and F(2, 8).

Line PQ passes through P(6, -3) and Q(0, -1).

Line RS passes through R(4, 6) and S(2, 1).

Are the lines perpendicular?

Graph the lines:

Find the slopes to verify.

EF: PQ: RS:

**Example 3: Using Slope to Identify a Polygon**

Chuck says that FGHJ is a parallelogram. Caroline says that it is a rectangle. Who is correct? Justify your answer.



Find the coordinates of each point.

F(-3, -2) ; G(-1, 2) ; H(4, 1) ; J(2, 3)

To check whether FGHJ is a parallelogram, check whether opposite sides are parallel.

To check whether FGHJ is a rectangle, check whether two intersecting sides are perpendicular.