Steps to Determine if Two Lines are Parallel, Perpendicular or Neither Given Points on the Lines.

1. W.O.P.
2. Make two columns and put identification at top for each line.
3. Put the given points in the appropriate columns.
4. Use slope formula in each column to find the slope.
5. Once you have both slopes do the following:
   a. If slopes are the same, write, "Lines are parallel since slopes are the same."
   b. If slopes are different, multiply slopes together and look at the product.
      i. If the product is equal to a negative one, write, "Lines are perpendicular since the product of slopes equals negative one."
      ii. If the product is not equal to a negative one, write, "Lines are neither parallel nor perpendicular.

Example: Determine if the two lines are parallel, perpendicular or neither.
   Line **m** passes points $(-3,-5)$ and $(-4,-4)$
   Line **n** passes points $(-2,-9)$ and $(1,3)$.

Line **m**	Line **n**
$m = \dfrac{y_2 - y_1}{x_2 - x_1}$	$m = \dfrac{y_2 - y_1}{x_2 - x_1}$
$m = \dfrac{(-4)-(-5)}{(-4)-(-3)}$	$m = \dfrac{(3)-(-9)}{(1)-(-2)}$
$m = \dfrac{-4+5}{-4+3}$	$m = \dfrac{3+9}{1+2}$
$m = \dfrac{1}{-1}$	$m = \dfrac{12}{3}$
$m = -1$	$m = 4$

Analysis: The slopes are different so the lines are not parallel. We then have to take the product of the two slopes to see if lines are perpendicular.

$product = (-1)(4)$

$\qquad = -4$

The product is not a negative one, so the lines are not perpendicular.

Conclusion: The lines are neither parallel nor perpendicular.

T