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## [**Suzanna Avina**](https://ashford.instructure.com/courses/3058/users/39222)

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 Week 3 Discussion 1

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MAT 221

For this week’s discussion, I am going to find the equations of lines that are parallel or perpendicular. I will work on the equation for the parallel line.

**PARALLEL LINES**

 **Parallel lines** are two lines that run along each other without intersecting.

My number is 3.

This is my equation:

 y = ¼ x – 2; (8, -1)

 m= 1/4

 y-y= m(x-x1) I will start with the point-**slope** equation

 y-(-1) = ¼ (x-(8)) Now I am going to substitute **m** for the known **slope** s substitute the **ordered pair** given ( 8,-1 )

 y + 1= ¼ (x-8)

 y+1= 1/4x – ¼ (-8)

 y+1=1/4x -8/4

 y+1= 1/4x – 2

 y +1 – 1= 1/4x – 2 -1 I am going to use the distributive property to remove the ( ), parenthesis) on

 to the right then to isolate “y” subtracting 1 from each side.

 y= 1/4x - 3 This is the answer for the equation of the parallel line.

**PERPENDICULAR LINES**

**Perpendicular lines** are two lines that intersect at a ninety-degree angle.

Next, I will work on the equation to find the perpendicular line:

My number is 3.

This is the equation given y= 1/4x - 2 (8, -1) x1= 8 y1= -1

 **Slope** **m**= ¼

 **Reciprocal** 1/4= 4

I will start with the

**Point-slope** equation. y –y1= m(x-x1)

Substituted “m” for the

Known **slope –** ½ and

X1 and y1 substituted the

**The ordered pair** was given. y- (-1) = 4 (x-8)

Then I simplified the “y”, and

 Used the distributive property y-1+1= 4 (x-8+1)

to remove the ( ), I add + 1 in each side.

This is the equation of the perpendicular line: y= 4x - 7