1. State the slope of a line parallel to the following lines.
   a. \( y = 3x - 2 \)  
   b. \( y = -\frac{1}{2}x + 5 \)
   
   \( m = 3 \)  
   \( m = -\frac{1}{2} \)

2. State the rate of change of a line perpendicular to the following lines.
   a. \( y = \frac{3}{4}x - 2 \)  
   b. \( y = 2x - 3 \)
   
   Rate of change = slope
   \( M = -\frac{4}{3} \)  
   \( M = -\frac{1}{2} \)

3. Find the equation of the line parallel to \( y = 4x + 1 \) through the point \((-1, 1)\).
   
   \[ y = mx + b \]
   \[ 1 = 4(-1) + b \]
   \[ 1 = -4 + b \]
   \[ b = 5 \]
   
   \( y = 4x + 5 \)

4. Find the equation of the line perpendicular to \( y = -3x + 2 \) through the point \((3, 4)\).
   
   \( y = mx + b \)
   \[ 4 = \frac{1}{3}(3) + b \]
   \[ 4 = 1 + b \]
   \[ b = 3 \]
   
   \( y = \frac{1}{3}x + 3 \)

5. Find the equation of the line perpendicular to the x-axis through the point \((6, 2)\).

   x-axis is horizontal
   \Rightarrow Perpendicular line will be vertical
   Vertical lines of the form \( x = a \)
   Line needs to go through \((6, 2)\)
   \( x = 6 \)