Find the slope of the straight line that passes through the given points or state that the slope is undefined. Then indicate if the line through the points rises (left to right), falls (left to right), is horizontal, or is vertical.

1. (7,4) and (1,1)

2. (-3,4) and (2,-1)

3. (-5,3) and (-5,2)

1. This line should pass through the two points (7,4) and(1,1)

The slope of line is

$m = \frac{y_2 - y_1}{x_2 - x_1}$, where $x_1 = 7, y_1 = 4, x_2 = 1, y_2 = 1$, so

$$m = \frac{1-4}{1-7} = \frac{1}{2}$$

$m > 0$, so the line through the points rises (left to right)

2. This line should pass through the two points (-3,4) and(2,-1)

The slope of line is

$m = \frac{y_2 - y_1}{x_2 - x_1}$, where $x_1 = -3, y_1 = 4, x_2 = 2, y_2 = -1$, so

$$m = \frac{-1-4}{2+3} = -1$$

$m < 0$, so the line through the points falls (left to right)

3. This line should pass through the two points (-5,3) and(-5,2)

The slope of line is

$m = \frac{y_2 - y_1}{x_2 - x_1}$, where $x_1 = -5, y_1 = 3, x_2 = -5, y_2 = 2$, so

$m = \frac{3-2}{-5+5} = \frac{1}{0}$,so the slope is undefined, so the line through the points is vertical