Hough Transform Line Parametrization

**Task:** Answer the Following Questions. You can just use this word template and insert your solution.

Q1. Show that if you use the line equation  , each image point (x, y) results in a sinusoid in () Hough space. Relate the amplitude and phase of the sinusoid to the point (x,y).

Q2. Why do we parametrize the line in terms () instead of the slope and intercept (m, c)? Express the slope and intercept in terms of ().

Q3. Assuming that the image points (x, y) are in an image of width W and height H, that is, , what is the maximum absolute value of , and what is the range for ?