1035-60-644 **Mohammad Javaheri*** (javaheri@uoregon.edu), Mohammad Javaheri, Department of Mathematics, University of Oregon, Eugene, OR 97403. *Biased monotonic random walks in the plane.* Preliminary report.

A random walk in the plane is called monotonic β-biased if it moves from (a,b) to $(a+1,b)$ with probability $1/(1+\beta)$ and moves to $(a,b+1)$ with probability $\beta/(1+\beta)$. We study the problem of finding $\Phi_\beta(\alpha)$, the probability that a monotonic β-biased random walk starting from the origin crosses the line $y=\alpha x$ in the plane. We illustrate the rich combinatorial structure of this problem and show that if $\beta \geq \lceil \alpha \rceil$, then $\Phi_\beta(\alpha)=1$. This result is a generalization of the fact that the one-dimensional standard random walk returns to the origin with probability 1. (Received September 12, 2007)