

**RANDOM WALKS IN THE POSITIVE QUADRANT.
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In the article, we consider a two-dimensional random walk $S(n) = S(\gamma, n)$, $n = 1, 2, \dots$, generated by the sequence of sums $S(\gamma, n) = \gamma + \xi(2) + \dots + \xi(n)$ of independent random vectors $\gamma, \xi(2), \dots, \xi(n), \dots$, with initial random state $\gamma = S(\gamma, 1)$; in addition, we assume that the vectors $\xi(i)$, $i = 2, 3, \dots$, have the same distribution F that differs in general from the distribution \bar{F} of the initial state γ . We study boundary functionals, in particular, the state of the random walk at the first exit time from the positive quadrant.

In the first part of the article, we obtain factorization identities (Theorem 1.1) and as a corollary give a limit theorem for the state $S(\gamma, n)$ of the random walk at the exit time from the positive quadrant under the condition that the value n of this time tends to infinity (Theorem 1.4).

Key words and phrases: random walk, boundary problem, factorization identity.

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