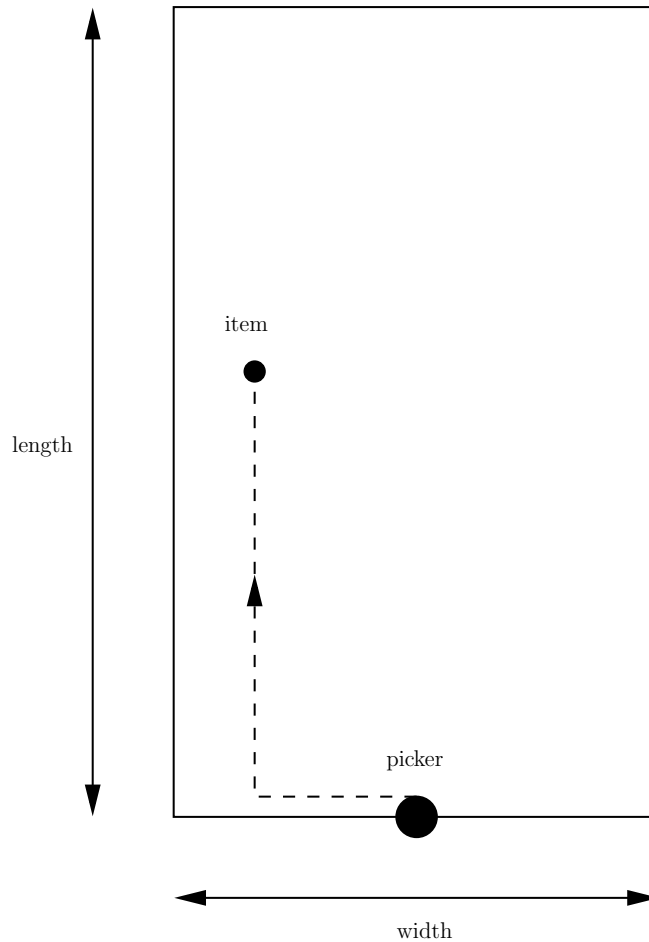




- (e) The assumption of exponential picking times is a rough approximation. We now formulate a more accurate model for the picking times. The zone or storage area for a picker is shown in the figure below. The width of the storage area is 24 meter, the length is 36 meter, and the walking speed of the picker is 3 meter per second. The order totes are waiting in the buffer, located at the starting point of the picker. Assume that the item to be picked is randomly located in the storage area. The time to pick the item is 2 seconds. Compute the mean and standard deviation of the total picking time (walking time plus time to pick the item).



- (f) Based on the above picking time model, adapt the mean value algorithm and compute again the performance.
- (g) Suppose the storage area can be re-designed. While keeping the area of square meters the same, what are the optimal dimensions (in view of the system performance) and why?