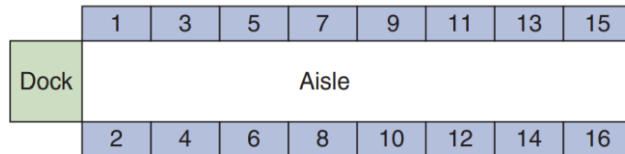DETERMINING STORAGE LOCATIONS IN A WAREHOUSE Solution

Erika Marsillac manages a warehouse for a local chain of specialty hardware stores. As seen in

Figure S11.3 , the single-aisle rectangular warehouse has a dock for pickup and delivery, along with 16 equal-sized storage blocks for inventory items.

Storage location in the warehouse

The following table shows: (1) the category of each item stored in the warehouse, (2) the estimated number of times per month (trips) that workers need to either store or retrieve those items, and (3) the area (number of specialized blocks) required to store the items. Erika wishes to assign items to the storage blocks to minimize average distance traveled.

ITEM	MONTHLY TRIPS TO STORAGE	BLOCKS OF STORAGE SPACE NEEDED
Lumber	600	5
Paint	260	2
Tools	150	3
Small hardware	400	2
Chemical bags	90	3
Lightbulbs	220	1

a- For each item, calculate the ratio of the number of trips to blocks of storage area needed. Rank the items according to this ratio, and place the highest -ranked items closest to the dock
b- Order frequency for paint is expected to increase to 410 trips per month. How will that change the storage plan?