

HOUSE MODELS

As the construction coordinator for Mammoth Builders, your job includes seeing that each of the five developments being constructed have the necessary materials for each style of house. You have arranged the materials into packaged sets. Some of the information you need for your job is expressed in the matrices below. Use this information when answering the questions.

Model: I, II, III, IV

Location: East Seneca, North Seneca, West Seneca

Door/Window Package: Outside doors, Windows, Closet doors

Cost: Cost of each item in the set

Matrix A

	I	II	III	IV
East Seneca	10	5	1	2
North Seneca	5	10	2	5
West Seneca	6	4	5	3

Matrix B

	I	II	III	IV
Outside doors	2	3	3	2
Windows	10	12	15	10
Closet doors	5	8	9	8

Matrix C

Cost

Outside doors	120
Windows	96
Closet doors	35

1. What is the total number of door/window packages for Model III? 27

$(3+15+9)$

2. Find  $2 \cdot A$ . What situation does this matrix represent?

20	10	2	4
10	20	4	10
12	8	10	6

TWICE AS MANY MODELS ARE BUILT IN EACH DEVELOPMENT

3. Express in words the following matrix configurations:

- a.  $A =$  location by model      d.  $A^T =$  MODEL by LOCATION  
 b.  $B =$  PACKAGE by MODEL      e.  $B^T =$  MODEL by PACKAGE  
 c.  $C =$  PACKAGE by COST      f.  $C^T =$  COST by PACKAGE

4. Which two matrices are multiplied to find the number of material packages needed in each location?  $A \cdot B^T$  or  $B \cdot A^T$   
Write and label the resulting matrix.

	OUTSIDE	WINDOWS	CLOSETS
E	42	195	115
N	56	250	163
W	45	213	131

$AB^T = BA^T$