Homework – Matrix Applications

58. ● *Real Estate* The following table shows the cost of one square foot of residential real estate, in dollars per square foot, at the start of 2003[8] together with the number of square feet your development company intends to purchase in each city.

	New York	London	Hong Kong
Cost per sq. foot	760	800	300
Number of sq. ft	500	800	1000

Use matrix multiplication to estimate the total cost of the real estate.

73. *Tourism* The following table gives the number of people (in thousands) who visited Australia and South Africa in 1998.[13]

To		Australia	South Africa
From	North America	440	190
	Europe	950	950
	Asia	1790	200

You estimate that 5% of all visitors to Australia and 4% of all visitors to South Africa decide to settle there permanently. Take A to be the 3×2 matrix whose entries are the 1998 tourism figures in the above table and take

$$B = \begin{bmatrix} 0.05 \\ 0.04 \end{bmatrix} \quad \text{and} \quad C = \begin{bmatrix} 0.05 & 0 \\ 0 & 0.04 \end{bmatrix}$$

Compute the products AB and AC. What do the entries in these matrices represent?