Precalculus Multiplying Matrices

Determine the dimensions of each matrix product.

1.
$$A_{2\times 3} \cdot B_{3\times 5}$$
 2. $A_{4\times 7} \cdot B_{7\times 1}$ 3. $A_{2\times 2} \cdot B_{3\times 2}$

For 4~10, use the given matrices below to find the product, if possible.

$$A = \begin{bmatrix} 7 & -2 \\ -1 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 7 \\ -2 & 4 \end{bmatrix} \quad C = \begin{bmatrix} 1 & -5 \\ -3 & 2 \end{bmatrix} \quad D = \begin{bmatrix} 2 & -3 & 1 \\ 4 & 2 & -1 \\ -2 & 3 & -3 \end{bmatrix}$$
$$E = \begin{bmatrix} 4 & 3 & 1 \\ -2 & -1 & -1 \end{bmatrix} \quad F = \begin{bmatrix} 6 & 5 & -2 \\ 2 & 4 & -1 \\ 3 & 1 & 4 \end{bmatrix}$$

4. AB

8. DF

5. CE 9. -2(FD)

6. EB

10. A²

7.ED

Show the matrices you set up to following matrix multiplication word problems. You may use a calculator on these.

8. On two days, a store sold the following amounts of pencils, erasers, and binders.

	Pencils	Erasers	Binders
Monday	48	7	9
Tuesday	54	10	6

If the price for each pencil, eraser, and binder, respectively, is \$0.20, \$0.35, and \$2.85, how much was made each day?

9. Old MacDonald has 3 fruit farms. On these he grows peaches, apricots, plums and apples. When he picked the fruit is sorted into layered boxes in which they will be sold. The chart below shoes the number of boxes for each type of fruit.

Location	Peaches	Apricots	Plums	Apples
Farm 1	152	225	395	277
Farm 2	236	183	245	183
Farm 3	95	132	0	285

Suppose he sells peaches for \$27 a box, apricots for \$15 a box, plums for \$34 a box, and apples for \$17 a box. Find the income for each farm. How much will he make total?

10. In a three team track meet, the following numbers of 1st, 2nd, and 3rd place finishes were recorded.

School	1st Place	2nd Place	3rd Place
Lee	4	10	6
Central	7	6	9
Clarke	8	3	4

If 5 points are award for 1st place, 3 points for 2nd, and 1 point for 3rd, determine who won the track meet.