NAME _____ DATE _____ PERIOD _____

6-2 Word Problem Practice

Matrix Multiplication, Inverses, and Determinants

1. INVENTORY A hardware company keeps three types of lawnmowers in stock at each of its three stores. The current inventory and retail price for each mower is shown. Determine which store's inventory has the greatest value. What is this value?

Mower Type	Store		
	A	B	C
4 HP	5	4	3
4.5 HP	3	5	4
5 HP	7	2	3

Mower Type	4 HP	4.5 HP	5 HP
Retail Value ($)	250	300	350

2. ICE SKATING Holly, Joelle, and Luisa are competitive skaters. Their routines are judged on skating skill (SS), choreography (C), and interpretation (I). In a recent competition, they received the following scores.

Skater	SS	C	I
Holly	6	4	2
Joelle	3	5	1
Luisa	2	4	6

One of two weighted systems shown below is used.

Criteria	System A	System B
SS	20%	40%
C	50%	30%
I	30%	30%

Use matrices to determine which system favors each skater.

a. Holly

b. Joelle

c. Luisa

Find AB and BA, if possible. (Example 1) by hand

1. $A = \begin{bmatrix} 8 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 3 & -7 \\ -5 & 2 \end{bmatrix}$

2. $A = \begin{bmatrix} 2 & 9 \\ -7 & 3 \end{bmatrix}$ $B = \begin{bmatrix} 6 & -4 \\ 0 & 3 \end{bmatrix}$

3. $A = \begin{bmatrix} 3 & -5 \end{bmatrix}$ $B = \begin{bmatrix} 4 & 0 & -2 \\ 1 & -3 & 2 \end{bmatrix}$

4. $A = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$ $B = \begin{bmatrix} 6 & 1 & -10 & 9 \end{bmatrix}$

5. $A = \begin{bmatrix} 2 \\ 5 \\ -6 \end{bmatrix}$ $B = \begin{bmatrix} 6 & 0 & -1 \\ -4 & 9 & 8 \end{bmatrix}$

6. $A = \begin{bmatrix} 2 & 0 \\ -4 & -3 \\ 1 & -2 \end{bmatrix}$ $B = \begin{bmatrix} 0 & 6 & -5 \\ 2 & -7 & 1 \end{bmatrix}$

9. **BASKETBALL** Different point values are awarded for different shots in basketball. Use the information to determine the total amount of points scored by each player. (Example 2)

Player	FT	2-pointer	3-pointer
Rey	44	32	25
Chris	37	24	31
Jerry	35	39	29

Shots	Points
free throw	1
2-pointer	2
3-pointer	3

Evaluate each expression. hand

$A = \begin{bmatrix} 4 & 1 & -3 \\ 0 & 2 & 8 \end{bmatrix}$ $B = \begin{bmatrix} 2 & 1 \\ 0 & 1 \\ 3 & -2 \end{bmatrix}$ $C = \begin{bmatrix} -1 & 9 & -6 \\ 7 & 5 & 0 \end{bmatrix}$ $D = \begin{bmatrix} 7 & 2 \\ -4 & -1 \end{bmatrix}$

57. $BD + B$

58. $DC - A$