Algebra 2—H
Ch 4 Practice B

Expansion by Minors
and review

***Expand the determinant about the given row or column.***

1. $\begin{vmatrix} 1 & 2 & 3 \\ 2 & -3 & 1 \\ 1 & 2 & 4 \end{vmatrix}$ ; row 1

2. $\begin{vmatrix} 10 & -2 & -1 \\ 12 & 1 & 8 \\ 0 & 0 & 1 \end{vmatrix}$ ; column 2

***Expand about any row or column.***

3. $\begin{vmatrix} -7 & 6 & 3 \\ -14 & -5 & 4 \\ 0 & 5 & 1 \end{vmatrix}$

4. $\begin{vmatrix} 1 & 2 & 2 & 3 \\ 1 & 0 & -2 & 0 \\ 3 & -1 & 1 & -2 \\ 4 & -3 & 0 & 2 \end{vmatrix}$

5. $\begin{vmatrix} 4 & 0 & 3 & 7 \\ 3 & 2 & 0 & 1 \\ -5 & -1 & 5 & 8 \\ 2 & 0 & 4 & 2 \end{vmatrix}$

6. ***Solve using matrix multiplication.***
Karl and Heather mixed dried fruits and nuts in two snack mixes. Matrix N lists, in grams per scoop, the amounts of proteins, carbohydrates, and fats for both dried fruits and nuts. Matrix G shows the combination, in numbers of scoops of dried fruits and nuts, for the two mixes. Find the product NG and correctly label rows and columns. Which mixture contains more fat?

$$N = \begin{array}{c} \begin{matrix} \text{DRIED FRUITS} & \text{NUTS} \end{matrix} \\ \begin{bmatrix} 3 & 20 \\ 65 & 21 \\ 1 & 52 \end{bmatrix} \end{array} \begin{matrix} \\ \text{PROTEIN} \\ \text{CARBOHYDRATES} \\ \text{FAT} \end{matrix} \qquad G = \begin{array}{c} \begin{matrix} \text{SPORT MIX} & \text{CAMP MIX} \end{matrix} \\ \begin{bmatrix} 4 & 3 \\ 2 & 3 \end{bmatrix} \end{array} \begin{matrix} \\ \text{DRIED FRUITS} \\ \text{NUTS} \end{matrix}$$

7. ***Write a system of equations and solve using Cramer's Rule:***
The perimeter of a triangle is 38 cm. The longest side is 4cm shorter than twice the middle side. The longest side is also 2 cm less than the sum of the other two sides. Find the three side lengths.

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Answers: 1. -7 2. 34 3. 49 4. -131 5. -384 6. camp mix (159 gm)
7. 18 cm, 11 cm, 9 cm