1. Multiply matrices: $\begin{bmatrix}1 & 2 & 3\end{bmatrix} \cdot \begin{bmatrix}4\\5\\6\end{bmatrix} =$

2. Multiply matrices: $\begin{bmatrix}2 & 3 & 4\end{bmatrix} \cdot \begin{bmatrix}12 & 13 & 14\\16 & 17 & 15\\20 & 18 & 19\end{bmatrix} =$

3. Mr. Marjoram wants to know how much money he makes per hour on the machines. He might change his mind about using 12 hours per machine.

Revenue is Rev $\begin{array}{c}\text{P}\quad\text{D}\quad\text{B}\\(\,2\quad 3\quad 4\,)\end{array}$ and machine time is $\begin{array}{c}\quad\text{Sew}\quad\text{Stuff}\quad\text{Trim}\\\begin{array}{c}\text{P}\\\text{D}\\\text{B}\end{array}\begin{pmatrix}12 & 13 & 14\\16 & 17 & 15\\20 & 18 & 19\end{pmatrix}\end{array}$

How much revenue does he make per hour on the machines?

$$\text{Rev}\begin{array}{c}\quad\text{Sew}\qquad\text{Stuff}\qquad\text{Trim}\\\left(\underline{\qquad}\quad\underline{\qquad}\quad\underline{\qquad}\right)\end{array}$$

4. Check your answer:

(a) How much total revenue does he make if he uses 12 hours on each machine?

Total revenue = \$ _____

(b) How much total revenue does he get from making 15 each of the pandas, dogs, and birds?

Total revenue = \$ _____

(c) What went wrong?

$$\begin{array}{c} \\ P \\ D \\ B \end{array} \begin{array}{c} \begin{array}{ccc} \text{Sew} & \text{Stuff} & \text{Trim} \end{array} \\ \begin{pmatrix} 12 & 13 & 14 \\ 16 & 17 & 15 \\ 20 & 18 & 19 \end{pmatrix} \end{array}$$

5. Is "Earn \$21.25 per hour on the sewing machine, and lose \$5 per hour on the stuffing and trimming machines" a good answer for Mr. Marjoram? Is it simple, clear, and correct?

6. (Especially for next chapter) If Mr. Marjoram wants to make the most money he can, why might he be confused by this answer?

7. (Especially for next chapter) How much total time would he use on the machines if it was possible to make -265 pandas, -25 dogs, and 215 birds?

$$\begin{array}{c} \\ \text{Sew} \\ \\ \text{Stuff} \\ \\ \text{Trim} \\ \\ \end{array} \begin{array}{c} \text{Used} \\ \left(\begin{array}{r} \text{min} \\ \hline \text{min} \\ \hline \text{min} \\ \hline \end{array} \right) \end{array}$$

How awesome would that be? Total revenue = \$ _____

But what it wrong with this?

8. (Back to this chapter) Invert $\begin{bmatrix} 1 & 2 \\ 3 & 5 \end{bmatrix}$