

1. Sizes of matrix multiplication.

(a) Multiply a  $2 \times 3$  by a  $3 \times 4$  and get:

(b) Multiply a  $3 \times 2$  by a  $4 \times 3$  and get:

(c) Multiply a  $2 \times 3$  by a  $2 \times 3$  and get:

2. Calculate the value of each customer's portfolio for Today:

				Today	Yesterday	Day before	...	
	IBM	Google	Toyota	Texaco	IBM	Google	Toyota	Texaco
Bill	18	16	12	14	3	3.01	2.99	...
Jim	12	18	11	12	4	3.99	3.99	...
					5	5.01	5.01	...
					1	1.02	1.03	...

3. Multiply:

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 11 & 12 & 13 & \dots \\ 21 & 22 & 23 & \dots \\ 31 & 32 & 33 & \dots \\ 41 & 42 & 43 & \dots \end{bmatrix}$$

4. Multiply:  $\begin{pmatrix} 1 & 2 \\ 1 & 3 \end{pmatrix} \cdot \begin{pmatrix} 3 & -2 \\ -1 & 1 \end{pmatrix}$

5. Solve  $\begin{pmatrix} 3 & -2 \\ -1 & 1 \end{pmatrix} \cdot \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 5 \\ 7 \end{pmatrix}$

6. Find the inverse of  $\begin{pmatrix} 1 & -2 & -2 \\ 2 & 1 & -6 \\ -1 & -1 & 3 \end{pmatrix}$