Identify the dimensions of each of the following matrices.

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

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

3. C = $\begin{bmatrix} 9 & 6 & -3 \\ 1 & -5 & 4 \end{bmatrix}$

4. D = $\begin{bmatrix} -3 & 0.5 & 6 \\ 1 & -2 & 4 \\ \frac{2}{3} & 5 & 0 \\ -4 & 3 & 2 \end{bmatrix}$

Using the matrices above, identify each of the following.

5. The element in row 3, column 2 of matrix B   _____

6. The element in row 1, column 3 of matrix A   _____

7. The element in row 1, column 2 of matrix C   _____

8. The element in row 3, column 1 of matrix D   _____

Solve each matrix equation for the variables.

9. $\begin{bmatrix} 10 & -3y \\ 6 & 13 \end{bmatrix} = \begin{bmatrix} 10 & -15 \\ 6x & 13 \end{bmatrix}$ x = _____   y = _____

10. $\begin{bmatrix} \frac{2}{3}x & -18 \\ \frac{z}{2} & 1 \end{bmatrix} = \begin{bmatrix} 12 & y-7 \\ 5 & 1 \end{bmatrix}$ x = _____   y = _____   z = _____

11. $\begin{bmatrix} 2x-3 & \frac{1}{2}y+2 \\ 23 & 4z-1 \end{bmatrix} = \begin{bmatrix} 5x+1 & 3 \\ 8-5w & 5+6z \end{bmatrix}$

    x = _____   y = _____

    w = _____   z = _____

12. $\begin{bmatrix} 4x & 5-3y \\ -6 & z+3 \\ 8 & 2 \end{bmatrix} = \begin{bmatrix} x-2 & -10 \\ 3a & \frac{1}{2}z \\ 2a+3b & 2 \end{bmatrix}$

    x = _____   y = _____   z = _____

    a = _____   b = _____