

Matrices:

For the following problems, solve the system of equations.

1.  $3y = 7x$   
 $2x + 3y = 30$

2.  $q_1 = 90 - \frac{q_2}{2}$   
 $q_2 = 90 - \frac{q_1}{2}$

3.  $4q_1 + q_2 + q_3 = 60$   
 $q_1 + 4q_2 + q_3 = 60$   
 $q_1 + q_2 + 4q_3 = 60$

For the following matrices, calculate the determinant.

4.  $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

5.  $\begin{bmatrix} 1 & 4 \\ 2 & 8 \end{bmatrix}$

6.  $\begin{bmatrix} 1 & 2 & 3 \\ 8 & 9 & 4 \\ 7 & 6 & 5 \end{bmatrix}$

Invert the following matrices,

7.  $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

8.  $\begin{bmatrix} 1 & 2 & 3 \\ 8 & 9 & 4 \\ 7 & 6 & 5 \end{bmatrix}$