

Handout 2 : Down and Dirty Determinants - Answers

1. Create a coefficient matrix for these equations:

$$3x - 4y = 6, 2x + 5y = 8$$

Ans: 12

$$\text{Ans: } \begin{bmatrix} 3x & -2y \\ -x & 4y \end{bmatrix} = \begin{bmatrix} 5 \\ 1 \end{bmatrix}$$

7. Use Cramer's Rule to solve the system presented in Question 1 for y :

2. How would you change $\begin{bmatrix} 3 & -4 \\ 2 & 5 \end{bmatrix}$ so it represents a determinant?

Ans: $y = \frac{12}{22}$

$$\text{Ans: } \begin{vmatrix} 3 & -4 \\ 2 & 5 \end{vmatrix}$$

8. What does it mean when the coefficient determinant is 0?

3. Solve for D : $\begin{vmatrix} 3 & -4 \\ 2 & 5 \end{vmatrix}$

Ans: It means the lines represented by the equations are either the same or parallel.

Ans: 22

4. Use Cramer's Rule to solve the system presented in Question 1 for D_x .

9. Show the way you'd find D for this matrix:

$$\begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

Ans: 62

Ans: $D = (a)(e)(i) + (b)(f)(g) + (c)(d)(h) - (g)(e)(c) - (h)(f)(a) - (i)(d)(b).$

5. Use Cramer's Rule to solve the system presented in Question 1 for x .

10. What matrix would give rise to this equation for $D = ad - bc$?

Ans: $y = \frac{62}{22}$

6. Use Cramer's Rule to solve the system presented in Question 1 for D_y .

$$\text{Ans: } \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$