

Student Name: _____

Score: _____

Determinants – Cramer's Rule

Three Variables: ES1

Identify the number of solutions using Cramer's rule:

$$\begin{aligned}3x + 2y - 3z &= 1 \\3x + 5y + 2z &= 7 \\x - y + z &= -2\end{aligned}$$

$$\Delta = \boxed{} \quad \Delta x = \boxed{} \quad \Delta y = \boxed{} \quad \Delta z = \boxed{}$$

Number of solutions:

$$\begin{aligned}2x - 3y + 3z &= 7 \\3x - 4y + 2z &= 1 \\x - y - 3z &= -2\end{aligned}$$

$$\Delta = \boxed{} \quad \Delta x = \boxed{} \quad \Delta y = \boxed{} \quad \Delta z = \boxed{}$$

Number of solutions:

$$\begin{aligned}6x - 2y + 2z &= 1 \\3x - y + z &= 3 \\2x + y - 3z &= 5\end{aligned}$$

$$\Delta = \boxed{} \quad \Delta x = \boxed{} \quad \Delta y = \boxed{} \quad \Delta z = \boxed{}$$

Number of solutions:

$$\begin{aligned}3x - 4y + z &= 19 \\4x - 2y + 3z &= 7 \\5x - 2y + 4z &= 6\end{aligned}$$

$$\Delta = \boxed{} \quad \Delta x = \boxed{} \quad \Delta y = \boxed{} \quad \Delta z = \boxed{}$$

Number of solutions:

Student Name: _____

Score: _____

Answer key

Determinants – Cramer's Rule

Three Variables: ES1

$$\Delta = 43 \neq 0$$

System of equations contain unique solution.

$$\Delta x = -24; \Delta y = 71; \Delta z = 9$$

$$\Delta = -2 \neq 0$$

System of equations contain unique solution.

$$\Delta x = 74; \Delta y = 58; \Delta z = 4$$

$$\Delta = 0$$

$$\Delta x = -10; \Delta y = -55; \Delta z = -25$$

System of equations contain no solution.

$$\Delta = 0$$

$$\text{Also } \Delta x = \Delta y = \Delta z = 0$$

System of equations contain infinite solutions.