

Student Name: _____

Score: _____

Determinants – Cramer's Rule

Three Variables: ES3

Identify the solutions using Cramer's rule:

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

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

$$\begin{aligned}2x + 2y - 7z &= 12 \\4x - 3y + 8z &= 15 \\7x + 4y - 3z &= 14\end{aligned}$$

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$$\Delta z = \boxed{}$$

$$z = \boxed{}$$

$$\begin{aligned}-2x + 2y + 3z &= -7 \\-x + 4y + 7z &= 8 \\-4x + 5y + z &= -17\end{aligned}$$

$$\Delta z = \boxed{}$$

$$z = \boxed{}$$

$$\begin{aligned}-x - 2y + 5z &= 16 \\7x + 5y - 2z &= -1 \\4x + 3y + z &= 3\end{aligned}$$

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

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

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Answer key

Determinants – Cramer's Rule

Three Variables: ES3

$$\Delta = -15$$

$$\Delta x = 30; \Delta y = -45; \Delta z = 15$$

$$x = \frac{\Delta x}{\Delta} = -2; y = \frac{\Delta y}{\Delta} = 3; z = \frac{\Delta z}{\Delta} = -1$$

$$\Delta = -169$$

$$\Delta x = -676; \Delta y = 845$$

$$x = \frac{\Delta x}{\Delta} = 4; y = \frac{\Delta y}{\Delta} =$$

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$$\Delta = 41$$

$$\Delta x = 287; \Delta y = 82; \Delta z =$$

$$x = \frac{\Delta x}{\Delta} = 7; y = \frac{\Delta y}{\Delta} =$$

$$\Delta = 24$$

$$\Delta x = 96; \Delta y = -120; \Delta z = 48$$

$$x = \frac{\Delta x}{\Delta} = 4; y = \frac{\Delta y}{\Delta} = -5; z = \frac{\Delta z}{\Delta} = 2$$