

Name: _____

MA162

Section: _____

Date: 2010-01-26

Activity 2.1a: Systems of equations

1. Solve the system of simultaneous equations:

$$\begin{array}{rrcr} 2x & -y & & = 4 \\ x & -y & & = 3 \end{array}$$

Answer: $(x = \text{_____}, y = \text{_____})$

2. Solve the system of simultaneous equations:

$$\begin{array}{rrcr} 2x & -y & +z & = 4 \\ x & -y & +z & = 3 \\ & & z & = 2 \end{array}$$

Answer: $(x = \text{_____}, y = \text{_____}, z = \text{_____})$

3. Solve the system of simultaneous equations:

$$\begin{array}{rrcr} 2x & -y & +z & = 4 \\ x & -y & +z & = 3 \\ & y & +z & = 4 \end{array}$$

Answer: $(x = \text{_____}, y = \text{_____}, z = \text{_____})$

Activity 2.1b: Degenerates

Sometimes systems of equations have no solutions, or infinitely many solutions.

1. Solve the system of simultaneous equations:

$$\begin{array}{rcl} x & = & 4 \\ x & = & 4 \\ x & = & 4 \end{array} \quad \textbf{Answer:} \quad (x = \underline{\hspace{2cm}})$$

2. Solve the system of **simultaneous** equations:

$$\begin{array}{rcl} x & = & 1 \\ x & = & 2 \\ x & = & 3 \end{array} \quad \textbf{Answer:} \quad (x = \underline{\hspace{2cm}})$$

3. Solve the system of simultaneous equations:

$$\begin{array}{rcl} x & +y & = 1 \\ 0x & +0y & = 0 \end{array} \quad \textbf{Answer:} \quad (x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}})$$

4. Solve the system of simultaneous equations:

$$\begin{array}{rcl} x & +y & = 1 \\ 0x & +0y & = 7 \end{array} \quad \textbf{Answer:} \quad (x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}})$$

5. Solve the system of simultaneous equations:

$$\begin{array}{rcl} x & +y & = 1 \\ 2x & +2y & = 9 \end{array} \quad \textbf{Answer:} \quad (x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}})$$

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Quiz on 2.1: Systems of equations

1. Solve the system of simultaneous equations:

$$\begin{array}{rrcr} x & +0y & +2z & = 3 \\ & y & -2z & = 4 \\ & & z & = 5 \end{array}$$

Or written more compactly, $x + 2z = 3$, $y - 2z = 4$, $z = 5$.

Answer: $(x = \text{_____}, y = \text{_____}, z = \text{_____})$

2. Solve the system of simultaneous equations:

$$\begin{array}{rrcr} x & +0y & +0z & = 3 \\ & y & +0z & = 4 \\ & & z & = 5 \end{array}$$

Or written more compactly, $x = 3$, $y = 4$, $z = 5$.

Answer: $(x = \text{_____}, y = \text{_____}, z = \text{_____})$