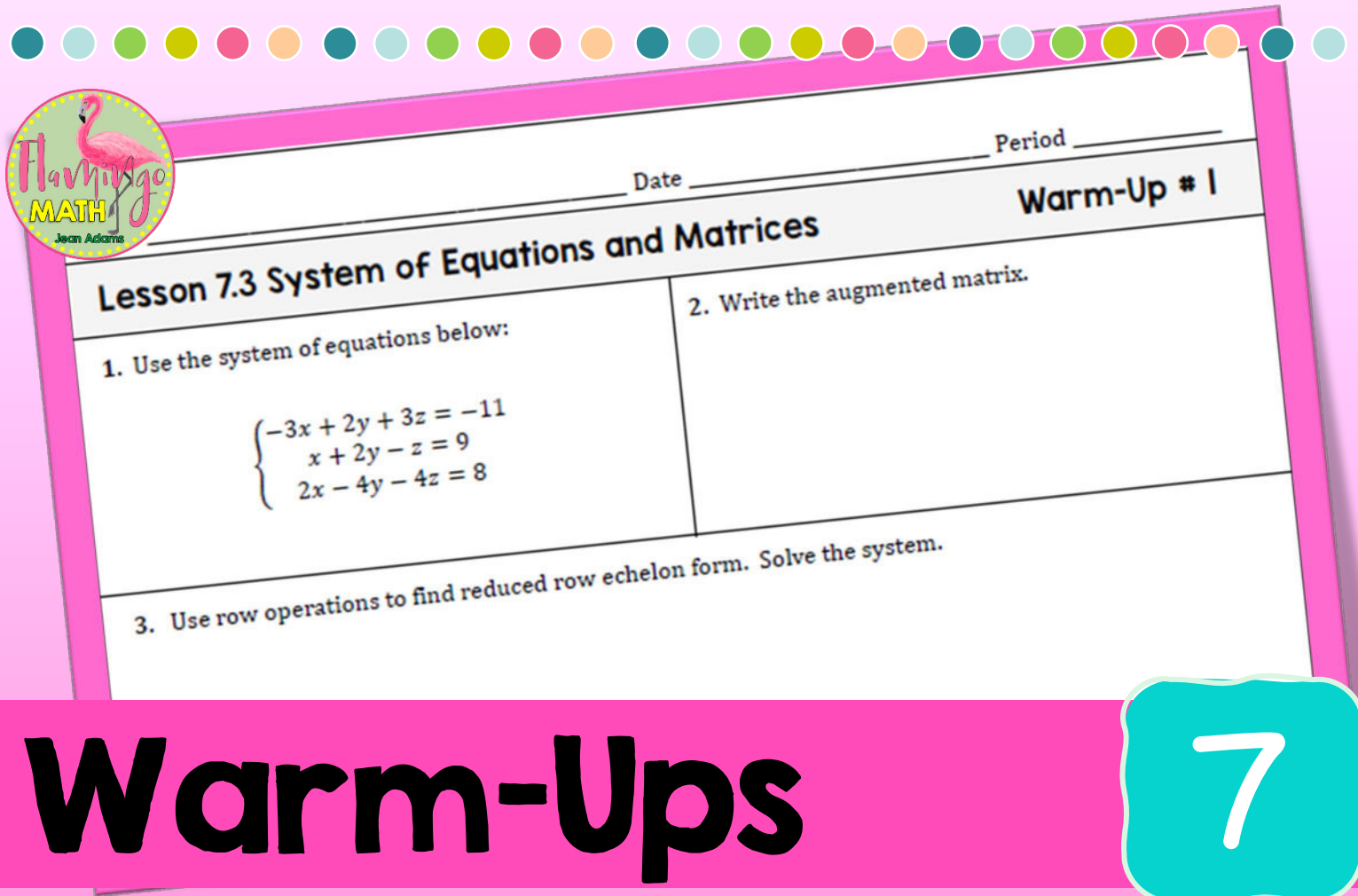
Precalculus Honors

Systems of Equations and Matrices


Date _____ Period _____

Lesson 7.3 System of Equations and Matrices **Warm-Up # 1**

1. Use the system of equations below:

$$\begin{cases} -3x + 2y + 3z = -11 \\ x + 2y - z = 9 \\ 2x - 4y - 4z = 8 \end{cases}$$

2. Write the augmented matrix.

3. Use row operations to find reduced row echelon form. Solve the system.

Warm-Ups

7

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PRECALCULUS CURRICULUM

Scope and Sequence

Unit 7: Systems of Equations and Matrices

Lesson	Skills & Learning Objectives
[7.1] Solving Systems of Equations	❑ Solve systems of equations in two variables by elimination method. ❑ Solve systems of three equations with three unknowns, including real-world applications.
[7.2] Multivariable Linear Systems	❑ Use back-substitution to solve linear systems in row-echelon form. ❑ Use Gaussian elimination to solve systems of linear equations. ❑ Solve non-square systems of linear equations ❑ Use systems of linear equations in three or more variables to solve real-world applications.
[7.3] Matrices and Systems of Equations	❑ Write matrices and identify their orders. ❑ Perform elementary row operations on matrices. ❑ Use matrices and Gaussian elimination to solve systems of linear equations ❑ Use matrices and Gauss-Jordan elimination to solve systems of linear equations.
[7.4] The Algebra of Matrices	❑ Determine whether two matrices are equal. ❑ Add and subtract matrices and multiply matrices by scalars. ❑ Multiple two matrices. ❑ Use matrix operations to model and solve real-world problems.
[7.5] Inverses of Matrices and Matrix Equations	❑ Verify that two matrices are inverses of each other. ❑ Use Gauss-Jordan elimination to find the inverses of matrices. ❑ Use a formula to find the inverses of matrices. ❑ Use inverse matrices to solve systems of linear equations.

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PRECALCULUS CURRICULUM

Scope and Sequence

Unit 7: Systems of Equations and Matrices

Lesson	Skills & Learning Objectives
[7.6] The Determinant of a Square Matrix	❑ Find the determinants of matrices. ❑ Find minors and cofactors of square matrices. ❑ Find the determinants of square matrices.
[7.7] Partial Fractions	❑ Recognize partial fraction decompositions of rational expressions. ❑ Find partial fraction decompositions of rational expressions.
[7.8] Systems of Nonlinear Equations	❑ Solve systems of nonlinear equations by graphing
[7.9] Linear Programming	❑ Sketch the graphs of inequalities in two variables ❑ Use linear programming to maximize and minimize real-world applications

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Lesson 7.1 Solving Systems of Equations — Warm-Up # 1

1. Solve. $\begin{cases} 8x - 6y = -20 \\ -16x + 7y = 30 \end{cases}$

2. Solve. $\begin{cases} -8x - 10y = 24 \\ 6x + 5y = 2 \end{cases}$

3. Solve. $\begin{cases} -\frac{5}{7} - \frac{11}{7}x = -y \\ 2y = 7 + 5x \end{cases}$

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Lesson 7.1 Solving Systems of Equations — Warm-Up # 2

1. Solve. $\begin{cases} 6x - 12y = 24 \\ -x - 6y = 4 \end{cases}$

2. Solve. $\begin{cases} -24 - 8x = 12y \\ 1 + \frac{5}{9}y = -\frac{7}{18}x \end{cases}$

3. Solve. $\begin{cases} -4y - 11x = 36 \\ 20 = -10x - 10y \end{cases}$

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Lesson 7.3 System of Equations and Matrices — Warm-Up # 1

1. Use the system of equations below:

$$\begin{cases} -3x + 2y + 3z = -11 \\ x + 2y - z = 9 \\ 2x - 4y - 4z = 8 \end{cases}$$

2. Write the augmented matrix.

3. Use row operations to find reduced row echelon form. Solve the system.

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Lesson 7.3 System of Equations and Matrices — Warm-Up # 2

1. Use the system of equations below:

$$\begin{cases} -5x + 5y + 10z = -10 \\ 3x - y - 2z = -2 \\ 3x - 6y - 6z = -24 \end{cases}$$

2. Write the augmented matrix.

3. Use row operations to find reduced row echelon form. Solve the system.

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Lesson 7.5 Inverses of Matrices — Warm-Up # 1

1. Find the inverse of the matrix.

$$\begin{bmatrix} 5 & -4 \\ 3 & -3 \end{bmatrix}$$

2. Find the value of the constant k such that $B = A^{-1}$.

$$A = \begin{bmatrix} 8 & 3 \\ 2 & 2 \end{bmatrix} \quad B = \begin{bmatrix} \frac{1}{5} & k \\ -\frac{1}{5} & \frac{4}{5} \end{bmatrix}$$

3. Solve by using matrix equations method.

$$\begin{cases} 9x - 2y = 5 \\ 3x + 7y = 17 \end{cases}$$

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Lesson 7.5 Inverses of Matrices — Warm-Up # 2

1. Find the inverse of the matrix.

$$\begin{bmatrix} 3 & 4 \\ 2 & 6 \end{bmatrix}$$

2. Find the value of the constant k such that $B = A^{-1}$.

$$A = \begin{bmatrix} 9 & 3 \\ 4 & 2 \end{bmatrix} \quad B = \begin{bmatrix} \frac{1}{3} & -\frac{1}{2} \\ -\frac{2}{3} & k \end{bmatrix}$$

3. Solve by using matrix equations method.

$$\begin{cases} 4x + 3y = -16 \\ -x + y = 4 \end{cases}$$

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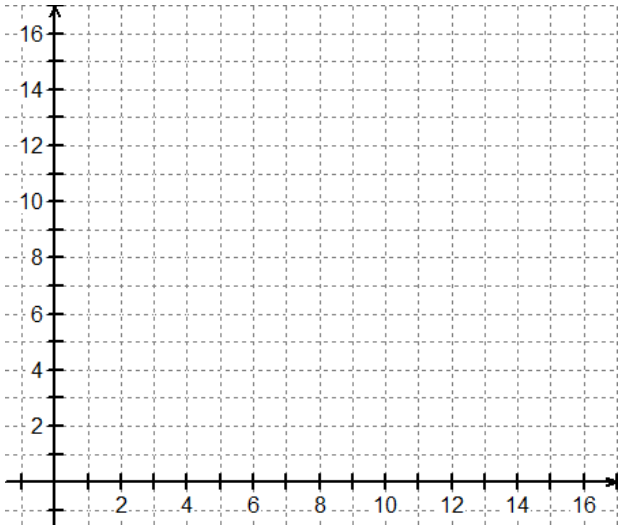
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Lesson 7.9 Linear Programming — Warm-Up # 1

Graph: $\begin{cases} 3x + y \geq 12 \\ 3x + 2y \geq 18 \\ x \geq 0 \\ y \geq 0 \end{cases}$

2. Find the minimum and maximum for the feasible region in #1, if the objective function is $f(x, y) = 5x + 2y$

1.



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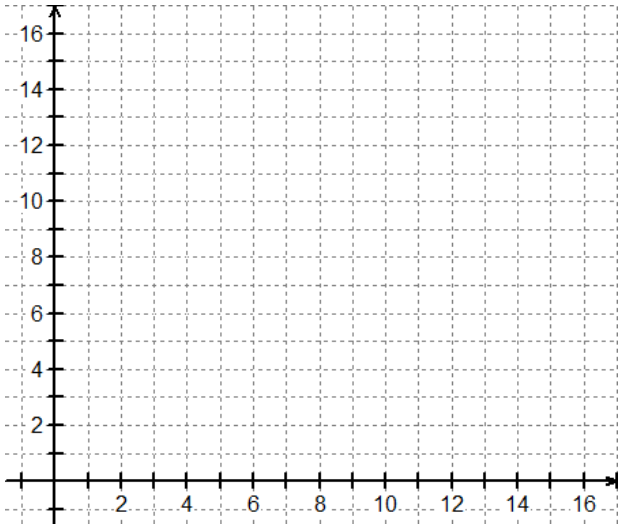
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Lesson 7.9 Linear Programming — Warm-Up # 2

Graph: $\begin{cases} x + 3y \geq 9 \\ 2x + 3y \geq 12 \\ x \geq 0 \\ y \geq 0 \end{cases}$

2. Find the minimum and maximum for the feasible region in #1, if the objective function is $f(x, y) = 5x + 2y$

1.



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