

Homework: Matrix Solutions to Linear Systems

In Problems 1-4, write the augmented matrix for each system of linear equations.

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| 1. $4x - y + z = 3$ $5x + 2y - 7z = 1$ $3x + y - 2z = -3$ | 2. $3x + y + 8z = -2$ $3y - 5z = -5$ $3z = 9$ |
| 3. $7x + 2y - z = -8$ $3x + 5z = -1$ $4x - 3y - z = -11$ | 4. $5w + 2x - 4y + z = 8$ $2w - x - 3y - 4z = -1$ $8w + 4x + y - z = -5$ $-4w - x - y + 2z = 3$ |

In Problems 5-6, write the system of linear equations represented by the augmented matrix. Use x , y , and z , or if necessary, w , x , y , and z , for the variables.

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| 5. $\begin{bmatrix} 2 & -1 & 0 & -3 \\ 5 & 2 & 1 & -7 \\ 7 & -1 & -2 & 3 \end{bmatrix}$ | 6. $\begin{bmatrix} 2 & 1 & 0 & 3 & -4 \\ 1 & -5 & 2 & 0 & 2 \\ 0 & 1 & 3 & -8 & -5 \\ 2 & 0 & -3 & -4 & -8 \end{bmatrix}$ |
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In Problems 7-11, solve each system of equations using matrices.

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| 7. $5x - 6y - 7z = -4$ $6x + 3y - 3z = -9$ $x - 6y + 3z = 22$ | 8. $7x + 2y + 3z = 6$ $8x - y = 17$ $6x - y - 5z = 23$ |
| 9. $x + y + 2z = -4$ $4x + y + 2z = 5$ $5x + 2y + 2z = 9$ | 10. $x - 3y + 4z = -8$ $2x + y + z = -5$ $3x - 4y + z = -1$ |

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11.

$$w - 2x + y - z = -3$$

$$2w - x + 3y - z = 4$$

$$3w + x - 2y - 4z = -1$$

$$4w - x - y + 5z = -2$$