

Name: _____

Find A^{-1} given $A = \begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 1 \\ 0 & -1 & 1 \end{bmatrix}$.

$$\left[\begin{array}{ccc|ccc} 1 & 2 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & -1 & 1 & 0 & 0 & 1 \end{array} \right]$$

$R_1 - 2R_2$
 $R_3 + R_2$

$$\left[\begin{array}{ccc|ccc} 1 & 0 & -1 & 1 & -2 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 2 & 0 & 1 & 1 \end{array} \right]$$

$\frac{R_3}{2}$

$$\left[\begin{array}{ccc|ccc} 1 & 0 & -1 & 1 & -2 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & \frac{1}{2} & \frac{1}{2} \end{array} \right]$$

$R_1 + R_3$
 $R_2 - R_3$

$$\left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 1 & -\frac{3}{2} & \frac{1}{2} \\ 0 & 1 & 0 & 0 & \frac{1}{2} & -\frac{1}{2} \\ 0 & 0 & 1 & 0 & \frac{1}{2} & \frac{1}{2} \end{array} \right]$$

$\underbrace{\hspace{3em}}_{I} \qquad \underbrace{\hspace{3em}}_{A^{-1}}$