Complete the following:

$$\begin{pmatrix} 2 \\ -1 \\ 0 \end{pmatrix} \begin{pmatrix} -2 & 0 & 1 \end{pmatrix} + \begin{pmatrix} 2 & 2 & -1 \\ 2 & 1 & 0 \\ -2 & -2 & 2 \end{pmatrix}$$

$$= \begin{pmatrix} \boxed{2} \times \boxed{-2} + 2 & \boxed{2} \times \boxed{0} + 2 & \boxed{2} \times \boxed{1} - 1 \\ \boxed{-1} \times \boxed{-2} + 2 & \boxed{-1} \times \boxed{0} + 1 & \boxed{-1} \times \boxed{1} + 0 \\ \boxed{0} \times \boxed{-2} - 2 & \boxed{0} \times \boxed{0} - 2 & \boxed{0} \times \boxed{1} + 2 \end{pmatrix}$$

$$= \begin{pmatrix} (\ 2\ )\left(\boxed{-2}\ \ \boxed{0}\ \ \boxed{1}\right) + (\ 2 \quad 2 \quad -1\ ) \\ (\ -1\ )\left(\boxed{-2}\ \ \boxed{0}\ \ \boxed{1}\right) + (\ 2 \quad 1 \quad 0\ ) \\ (\ 0\ )\left(\boxed{-2}\ \ \boxed{0}\ \ \boxed{1}\right) + (\ -2 \quad -2 \quad 2\ ) \end{pmatrix}$$