

2 The Zero & Identity Matrices DONE

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15:22

$$0 = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$$

$$I = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

$$A = \begin{pmatrix} 3 & 1 \\ 2 & -5 \end{pmatrix}$$

$$A + 0 = A$$

$$AI = A$$

$$AB = I$$

$$A - 0 = A$$

$$IA = A$$

$$\begin{pmatrix} 3 & 1 \\ 2 & -5 \end{pmatrix} \begin{pmatrix} a & b \\ c & d \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

$$\begin{aligned} a = \frac{5}{17} \\ c = \frac{2}{17} \end{aligned} \iff \begin{aligned} 3a + c &= 1 \\ 2a - 5c &= 0 \end{aligned} \iff \begin{pmatrix} 3a + c & 3b + d \\ 2a - 5c & 2b - 5d \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

$$\begin{aligned} b = \frac{1}{17} \\ d = -\frac{3}{17} \end{aligned} \iff \begin{aligned} 3b + d &= 0 \\ 2b - 5d &= 1 \end{aligned}$$