If $A^{17} = I_2$, then it is false that A must be I_2. As a counterexample, let A be a rotation matrix on $\frac{2\pi}{17}$:

$$A = \begin{bmatrix} \cos(\frac{2\pi}{17}) & -\sin(\frac{2\pi}{17}) \\ \sin(\frac{2\pi}{17}) & \cos(\frac{2\pi}{17}) \end{bmatrix}$$

A single rotation on 2π would give I_2:

$$\begin{bmatrix} \cos(2\pi) & -\sin(2\pi) \\ \sin(2\pi) & \cos(2\pi) \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = I_2$$

If the rotation angle 2π is divided by 17, then repeating the rotation 17 times would result in a rotation by 2π. This is what is being done when the rotation matrix A is put to the power of 17.