$$B(2) = [A(0) - A(2)] W_8^0 = [1 - 0] (1) = 1$$

$$B(3) = [A(1) - A(3)] W_9^2 = [1 - 0] [-] = -]$$

$$B(0) = [A(0) + A(2)] = 1$$

$$B(1) = A(1) + A(3) = 1$$

$$B(4) = A(4) + A(6) = 1 + 0$$

$$B(5) = A(5) + A(7) = \frac{2}{2} - j\frac{2}{2} + 6$$

$$B(6) = [A(4) - A(6)] N_0^0 = (1)(1)$$

$$B(7) = [A(5) - A(7)] N_0^2 = (\frac{2}{2} - j\frac{2}{2})(-j) = -\frac{2}{2} - j\frac{2}{2}$$

STAGE 3

$$\begin{array}{l} X(0) = B(0) + B(1) = 1 + 1 = 2 \\ X(4) = \begin{bmatrix} B(0) - B(1) \end{bmatrix} W_0^0 = \begin{bmatrix} 1 - 1 \end{bmatrix} \begin{bmatrix} 1 \end{bmatrix} = 0 \\ X(2) = \begin{bmatrix} B(2) + B(3) \end{bmatrix} = 1 - j \\ X(6) = \begin{bmatrix} B(2) - B(3) \end{bmatrix} W_0^0 = (1 + j)(1) = 1 + j \\ X(1) = B(4) + B(5) = (1 + 2 - j) \end{array}$$

$$\begin{array}{l} X(1) = B(4) + B(5) = (1 + 2 - j) \end{array}$$

$$\begin{array}{l} X(5) = \begin{bmatrix} B(4) - B(5) \end{bmatrix} W_0^0 = \begin{bmatrix} 1 - 2 + j \end{bmatrix} \begin{bmatrix} 1 \end{bmatrix} = (4 - 2 + j) \end{array}$$

$$\begin{array}{l} X(3) = B(6) + B(7) = (1 - 2 - j) \end{array}$$

$$\begin{array}{l} X(7) = \begin{bmatrix} B(6) - B(7) \end{bmatrix} W_0^0 = (1 + 2 - j) \end{array}$$

(B) The main advantage of FFT VS. DFT is the amount of time to compute. complexity for FFT is $\frac{N}{2}109_2$ N Vs. N^2 for DFT.