$$W^{(3)} = \begin{pmatrix}
1 & 1 & 1 & 1 & 1 & 5 & 5 & 5 & 5e^{\frac{2i\pi}{5}} & 5e^{\frac{4i\pi}{5}} & 5e^{\frac{6i\pi}{5}} & 5e^{\frac{8i\pi}{5}} & 5e^{\frac{10i\pi}{5}} & 5e^{\frac{10i\pi}{5}} & 5e^{\frac{8i\pi}{5}} & 5e^{\frac{6i\pi}{5}} & 5e^{\frac{4i\pi}{5}} & 5e^{\frac{2i\pi}{5}} & 5 & 5e^{\frac{4i\pi}{5}} & 5e^{\frac{8i\pi}{5}} & 5e^{\frac{10i\pi}{5}} & 5e^{\frac{6i\pi}{5}} & 5e^{\frac{2i\pi}{5}} & 5e^{\frac{2i\pi}{5}} & 5e^{\frac{6i\pi}{5}} & 5e^{\frac{10i\pi}{5}} & 5e^{\frac{8i\pi}{5}} & 5e^{\frac{4i\pi}{5}} & 11e^{\frac{6i\pi}{25}} & 11e^{\frac{16i\pi}{25}} & 11e^{\frac{24i\pi}{25}} & 11e^{\frac{14i\pi}{25}} & 11e^{\frac{4i\pi}{25}} & 11e^{\frac{24i\pi}{25}} & 11e^{\frac{6i\pi}{25}} & 11e^{\frac{14i\pi}{25}} & 11e^{\frac{16i\pi}{25}} & 11e^{\frac{4i\pi}{25}} & 11e^{\frac{4i\pi}{25}} & 11e^{\frac{16i\pi}{25}} & 11e^{\frac{14i\pi}{25}} & 11e^{\frac{24i\pi}{25}} & 11e^{\frac{6i\pi}{25}} \\