

$$w = 0$$

$$\frac{\hat{E}_2 E_4 E_6}{\Delta} = \mathcal{F}(2, 1, 0) - 5 \mathcal{F}(1, 1, 0) - 144$$

$$\frac{\hat{E}_2^2 E_4^2}{\Delta} = \frac{1}{5} \mathcal{F}(3, 1, 0) - 4 \mathcal{F}(2, 1, 0) + 13 \mathcal{F}(1, 1, 0) + 144$$

$$\frac{\hat{E}_2^3 E_6}{\Delta} = \frac{3}{175} \mathcal{F}(4, 1, 0) - \frac{3}{5} \mathcal{F}(3, 1, 0) + \frac{33}{5} \mathcal{F}(2, 1, 0) - 17 \mathcal{F}(1, 1, 0) - 144$$

$$\begin{aligned} \frac{\hat{E}_2^4 E_4}{\Delta} = & \frac{1}{1225} \mathcal{F}(5, 1, 0) - \frac{6}{175} \mathcal{F}(4, 1, 0) + \frac{18}{35} \mathcal{F}(3, 1, 0) - \frac{16}{5} \mathcal{F}(2, 1, 0) \\ & + \frac{29}{5} \mathcal{F}(1, 1, 0) + \frac{144}{5} \end{aligned}$$

$$\begin{aligned} \frac{\hat{E}_2^6}{\Delta} = & \frac{1}{1926925} \mathcal{F}(7, 1, 0) - \frac{3}{2695} \mathcal{F}(5, 1, 0) + \frac{6}{175} \mathcal{F}(4, 1, 0) - \frac{3}{7} \mathcal{F}(3, 1, 0) \\ & + \frac{12}{5} \mathcal{F}(2, 1, 0) - \frac{29}{7} \mathcal{F}(1, 1, 0) - \frac{144}{7} \end{aligned}$$

$$w = -2$$