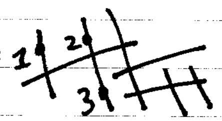
A.B
5.31

Kontsevick space

$$M_d = \overline{M_{0,3}}(X, d) = \{ \text{stable } F : C \longrightarrow X \mid F_*[C] = d \cdot [\text{line}] \}$$

$C =$ 

any component mapped → point ∈ X
must have ≥ 3 marked/sing. pts

$ev_i : M_d \to X \qquad ev_i(F) = f(i\text{th marked pt})$

GW-variety :

$$E = ev_1^{-1}(g_1 \cdot X_\lambda) \cap ev_2^{-1}(g_2 \cdot X_\mu) \cap ev_3^{-1}(g_3 \cdot X_\nu)$$

$$\dim E = \dim X + nd - |\lambda| - |\mu| - |\nu| .$$

$$\dim E = 0 \Rightarrow \langle X_\lambda, X_\mu, X_\nu \rangle_d = \# E .$$

Def (Lee, Givental ?)

$$\langle \mathcal{O}_\lambda, \mathcal{O}_\mu, \mathcal{O}_\nu \rangle_d = \chi(E) = \sum_{i \geq 0} (-1)^i \dim H^i(E, \mathcal{O}_E) .$$

K-theory

$$K(X) = \mathbb{Z}\{ \text{alg. vector bdls on } X \} / \text{rels}$$

$$[\mathcal{E}] = [\mathcal{E}'] + [\mathcal{E}''] \quad \text{if} \quad 0 \to \mathcal{E}' \to \mathcal{E} \to \mathcal{E}'' \to 0$$

$$[\mathcal{E}_1] \cdot [\mathcal{E}_2] = [\mathcal{E}_1 \otimes \mathcal{E}_2] .$$

Resol: $0 \to \mathcal{E}_p \to \cdots \to \mathcal{E}_1 \to \mathcal{E}_0 \to \mathcal{O}_{X_\lambda} \to 0$

Def : $\mathcal{O}_\lambda = [\mathcal{O}_{X_\lambda}] = \sum_{i \geq 0} (-1)^i [\mathcal{E}_i]$.

$$K(X) = \bigoplus_{\lambda \subseteq (m \times k)} \mathbb{Z} \cdot \mathcal{O}_\lambda \qquad \mathcal{O}_\lambda \cdot \mathcal{O}_\mu = \sum_{|\nu| = |\lambda| + |\mu|} c_{\lambda\mu}^\nu \mathcal{O}_\nu$$

$$\mathcal{O}_{(1)} \cdot \mathcal{O}_{(1)} = \mathcal{O}_{(2)} + \mathcal{O}_{(1,1)} - \mathcal{O}_{(2,1)} .$$