

$$2 \cdot [(p_\mu + p_{1\mu}) \cdot (p_3^\mu)] [(p_\mu + p_{1\mu}) \cdot (p_2^\mu)] - (p_{3\mu} \cdot p_2^\mu)(p_\mu + p_{1\mu})^2,$$

$$\mu = 0, 1, 2, 3 \text{ Minkowski index ; } p_\mu = (E, \mathbf{p}), p^\mu = (E, -\mathbf{p})$$