Physics 125 Third Problem Set

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Definitely read Chapter 2 very carefully before doing these problems. There is material there that is not covered in the lectures that you must know.

1. Griffiths 2.5

2. Griffiths 2.7

3. Estimate from the Feynman diagram(s) the ratio R of rates:

$$R = \frac{\Gamma(D_s^+ \to \mu^+ \nu)}{\Gamma(D^+ \to \mu^+ \nu)}$$

4. Use the method described in Lecture 6 to obtain the color wavefunction of a quark and an antiquark in their lowest lying state, and show that the eigenvalue of the product of strong charge couplings is $(-4/3)\alpha_s$.