

Physics 115a

Homework 7 (due May 31 at start of class)

Assigned May 24

7.1) Griffiths Problem 2.34

Additional information for part d): Please this formula to get Eqn 2.172:

$$T = \frac{v_{\text{classical}}^{\text{Transmitted}} |F_{\text{Transmitted}}|^2}{v_{\text{classical}}^{\text{Incident}} |A_{\text{Incident}}|^2}$$

Where you can get $v_{\text{classical}}$ from Griffiths Eqn 2.98. The idea behind this definition is that there are more particles for the same amplitude if they are moving faster. If we want the transmission coefficient to give the fraction of particles transmitted we need to include this effect in the calculation. The reasoning can get a bit delicate without making these states into wavepackets however, so I've given you this additional information to prevent you from worrying too much about it.