Name:

Physics 51
Homework #24
December 8, 2016

Townsend 1.{37, 43}

Townsend 1.37 Determine the probability that a photon is detected at the first minimum of a six-slit grating if the bottom two slits are closed. Assume the magnitude of the probability amplitude due to each slit is r. *Suggestion*: Start by showing how the complex probability amplitudes from each slit add up to zero at the first minimum.

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Townsend 1.43 Use the principle of least time to derive Snell's law, namely, $n_1 \sin\theta_1 = n_2 \sin\theta_2$ for light being refraction as it travels from a medium with index of refraction n_1 into a medium with index of refraction n_2. *Suggestion*: Follow a procedure similar to the one given in Example 1.11. Locate the source S in medium 1 and the point P in medium 2.

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