**PHYS 4270 / 5390 Astronomical Techniques**

**Assignment #5: Adaptive Optics**

**Solutions must be uploaded to eClass by noon, Thurs Feb 4**

1.

a) [All students] Adaptive Optics (Chapter 5): Questions 1 through 4 inclusive.

1. [Graduate students] Adaptive Optics (Chapter 5): Question 5.
2. [All students] Write down the middle three digits of your nine-digit York U student number. Express this as a percentage; e.g., if the three digits were 621, “your percentage,” *p*,would be 62.1%. Now assume you observe an astronomical point source whose PSF is given by equation (5.2) from your notes (with *r*­c = 0). Find the value of (*r*/*σ*) such that *I*(*r*)/*I*o = *p* (to at least four significant figures). Show all your work.
3. [Graduate students] As per equation (5.1), calculate the encircled energy (as a percentage) with “your” value for (*r*/*σ*) above to at least three significant figures.