Physics 214   **Quiz 2-2 [20 points]**

a) [5 points] The largest astronomical telescopes have mirrors about 10 meters in diameter. What angular separation of visible objects (use $\lambda = 550$ nm) can they resolve if diffraction is the limiting factor?

b) [6 points] Could such a telescope resolve the pitchers mound from home plate on a lunar baseball field (*i.e.*, separated by 18.4 m) on the moon? Assume the moon is 3.8 x 10^8 m away.

c) [5 points] A laser has an aperture of 0.25 cm. It sends its light ($\lambda = 550$ nm) to the moon. What is the diameter of the beam that hits the moon?

d) [4 points] To decrease the spot size on the moon, we could do which of the following (check all that apply):
___decrease the aperture size
___increase the aperture size
___decrease the wavelength
___increase the wavelength