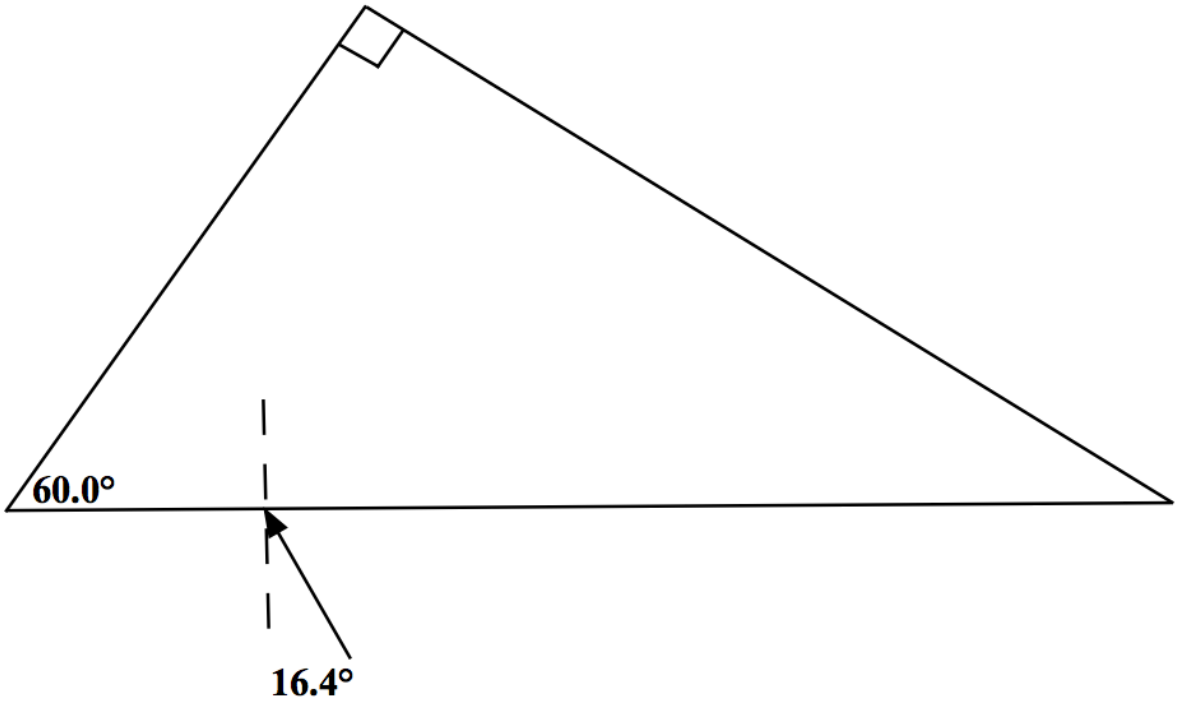
Physics 10164 - Summer 2017 - Exam #3

Partial credit will be given provided you show all work and are solving parts of the problem correctly. Points will be deducted if you don't show your work even if you get the right answer. Clearly indicate your answer with a circle or a box and remember to include correct units and significant figures.

1. (30 pts) A person standing 24.0 cm meters in front of a curved mirror produces an upright image 44.0 cm behind the mirror. How close to the mirror should the person stand in order to form an inverted image that is only 25.0% as tall as the person?

2. (35 pts) A light ray is incident on a 30.0-60.0-90.0 right triangle prism with an index of refraction of 1.45. The angle of incident the incoming ray makes with the surface is shown. Determine which face the light ray exits from and with what angle of refraction.



#3. (35 pts) A 455-nm thick anti-reflective coating (n = 1.52) is applied to a smooth glass surface (n = 1.44). What wavelengths of light in the visible region of the spectrum (between 400 and 700 nm) are brightly reflected from this surface? Be show to show all steps in solving this problem?