Tutorial for PHYS210 lecture 1 Recap of PHYS110

1. Light enters from air (n=1) to glass (n=1.5) with an angle to the normal of 45degrees.
What is the angle with the normal in the glass? What if the light entered from water (n=1.33)?

2. What is the critical angle of diamond (n=2.4)?

3. A thin prism, made of glass with n=1.6, has an apex angle of 3 degrees.
What is the angle of minimum deviation?

4. A prism gives a displacement of 2 cm over a distance of 30cm. What is the strength?

5. A lens has a strength of +8D. What is its focal distance?

6a. A lens with a power of 4D is combined with a lens of 1D. What is the strength of the system?
6b. A lens with a focal distance of -50cm is combined with a lens of 5D. What is the strength of the system?
6c. A system of two lenses has a focal distance of -100 cm. One of the lenses has a strength of 2D. What is the focal distance of the other lens?

7. A lens with a focal distance of +200 cm is displaced by 1.5 cm.
How strong is the prismatic effect of this lens?

8. An object of 1 cm is held 10 cm in front of a convex lens with a focal distance of +6 cm. Draw the three rays to find the position and size of the image. Use the lens equation to verify your results.

9. An object of 1 cm is held 10 cm in front of a concave lens with a focal distance of -6 cm. Draw the three rays to find the position and size of the image. Use the lens equation to verify your results.

10. A person's far point lies 40cm in front of his eye. What strength contact lenses does the person need to correct for this?

11. A person's far point lies 50cm behind the eye. What strength contact lenses does this person need?