Problems discussed in the video series:

Video (3)
The sun delivers about 1000 W/m^2 of energy to the Earth's surface.
(A) Calculate the total power incident on a roof of dimensions 8m x 20m. Explain.
(B) Determine the radiation pressure and radiation force on the roof assuming the roof covering is a perfect absorber. Explain.

Videos (5) – (8)
Two thin converging lenses of focal lengths f_1=10cm and f_2=20cm are separated by 20cm. An object is placed 15cm to the left of the first lens.
(a) Find the position of the final image. Explain.
(b) Is the final image inverted or upright? Virtual or real? Explain your reasoning.
(c) Find the magnification of the final image. Explain.

Video (9)
A classic science-fiction story, "The Invisible Man," tells of a person who becomes invisible by changing the index of refraction of his body to that of air. This story has been criticized by students who have studied how the eye works; they claim the invisible man would be unable to see. On the basis of your knowledge of the eye, could he see or not? Explain.

Video (10)
A nearsighted person has a far point located only 220cm from her eyes. Determine the focal length of contact lenses that will enable her to see distant objects clearly. If needed, you can assume that her eyes are 2.5cm in diameter. Explain.