

Problems discussed in videos:

Videos (3) – (4)

39. If a soap bubble is 120nm thick, what color will appear at the center when illuminated normally by white light? Assume that  $n=1.34$ .

Video (5)

41. What is the minimum thickness of a soap film ( $n = 1.42$ ) that would appear black if illuminated with 480-nm light? Assume there is air on both sides of the soap film.

Videos (6) – (7)

42. A lens appears greenish yellow ( $\lambda=570\text{nm}$  is strongest) when white light reflects from it. What minimum thickness of coating ( $n=1.25$ ) do you think is used on such a (glass) lens, and why?

Video (8)

45. How thick (minimum) should the air layer be between two flat glass surfaces if the glass is to appear bright when 450-nm light is incident normally? What if the glass is to appear dark?

Video (10)

5. Light of wavelength 680 nm falls on two slits and produces an interference pattern in which the fourth-order fringe is 38 mm from the central fringe on a screen 2 m away. What is the separation of the two slits?