4. The Ryderg formula gives the wavelength as

$$1 / \lambda = R (1 / n^2 - 1 / m^2)$$

$$1 / \lambda = (1.097 \times 10^7 m^{-1}) (1 / 1^2 - 1 / 6^2)$$

$$1 / \lambda = (1.097 \times 10^7 m^{-1}) (1 - 1 / 36)$$

$$1 / \lambda = (1.097 \times 10^7 m^{-1}) (1 - 0.028)$$

$$1 / \lambda = (1.097 \times 10^7 m^{-1}) (0.972)$$

$$1 / \lambda = 1.066 \times 10^7 m^{-1}$$

Taking the reciprocal of each side of the equation we get

$$\lambda = 1 / (1.066 \times 10^7 m^{-1})$$

$$\lambda = 9.38 \times 10^{-8} m = 93.8 nm$$

This is well below the shortest wavelength that the unaided eye is capable of detecting.