

The following table lists diffraction angles for the first three peaks (first-order) of the x-ray diffraction pattern for some metal. Monochromatic x-radiation having a wavelength of 0.0711 nm was used.

(a) Determine whether this metal's crystal structure is FCC, BCC or neither FCC or BCC and explain the reason for your choice. (15 points)

(b) If the crystal structure is either BCC or FCC calculate the atomic radius. (5 points)

Peak Number	Diffraction Angle ( $2\theta$ )
1	18.27°
2	25.96°
3	31.92°