

MATE 318

Spring 2025

Homework #2

Due: March 25th, 2025

Group submission (up to 3 students per group) is allowed.

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Question

The x-ray powder diffraction pattern given below belongs to a pure metal and it was obtained using **Co K α** x-rays.

Determine **a)** the crystal structure of the metal; **b)** the indices of the planes that produce each of the peaks; **c)** the lattice parameter of the metal, **d)** its atomic radius, and **e)** the name of the metal. Show your work on the pattern. You may want to use a spreadsheet program like Excel to reduce labor.

