



In 1772, the German astronomer Johann Elert Bode discovered a relationship between the average distance from the sun of the six planets known at that time and an arithmetic sequence.

Find the actual distances of the rest of the planets discovered since 1772 in AU's, multiples of the earth's average distance. Complete this table, devising a formula for Bode's "Law," and determine how close he came to predicting the planets beyond Saturn.

Planet	Actual Distance (AU's)	Bode's Pattern					Average Distance (AU's)
Mercury	0.39	0	+	4	=	4	0.4
Venus	0.72	3	+	4	=	7	
Earth	1.00	6	+	4	=	10	
Mars	1.52	12	+	4	=	16	
		24	+	4	=	28	2.8
Jupiter	5.20	48	+	4	=	52	
Saturn	9.54	96	+	4	=	100	

Give an oral report to a class studying the solar system about your findings here and whether there could be any other Planet X.

**Extension:** Does Bode's "Law" work for moons around planets?