

57.7: The Inverse Problem

The problem we just solved is: given the orbital elements of the planet, we found its position in the sky at any given time. But how did we get the orbital elements in the first place? This has to do with the inverse of the problem just solved: given the position of the planet in the sky, what are the orbital elements?

It turns out that we require three separate observations of the body at three different times. Knowing the right ascension α and declination δ of the body at three different times, one can derive the orbital elements. Details are given in Chapter 4 of the reference by McCuskey [12].

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