The little prince has really come to like this little body that's orbiting him.

He knows at what distance it orbits and knows how fast it goes.

And I think the little prince fell in love with that little body.

And now he wants to see it all the time as it goes around the asteroid.

But the little prince just wants to keep sitting there.

He doesn't want to move.

So how fast does the asteroid need to rotate so that the little prince will always see the body as it rotates around him?

Well, for that, we need to simply consider that the period of the little body going around the asteroid needs to be the same as the asteroid rotation period.

So we're going to call that Ta for asteroid.

And well, if we want to know at what distance that works out, then we're going to use Kepler's laws here again.

And we're going to have that the radius between the body and the asteroid will be Gm1 over 4 pi squared.

And now we have Ta squared in here and the third of that.

So all of these wonderful quantities make the little prince really happy.