

DF

## Illustrating Johannes Kepler's "Equal Areas" Law

The radius vector sweeps out equal areas of space during equal time intervals.

In the Calculus notation,

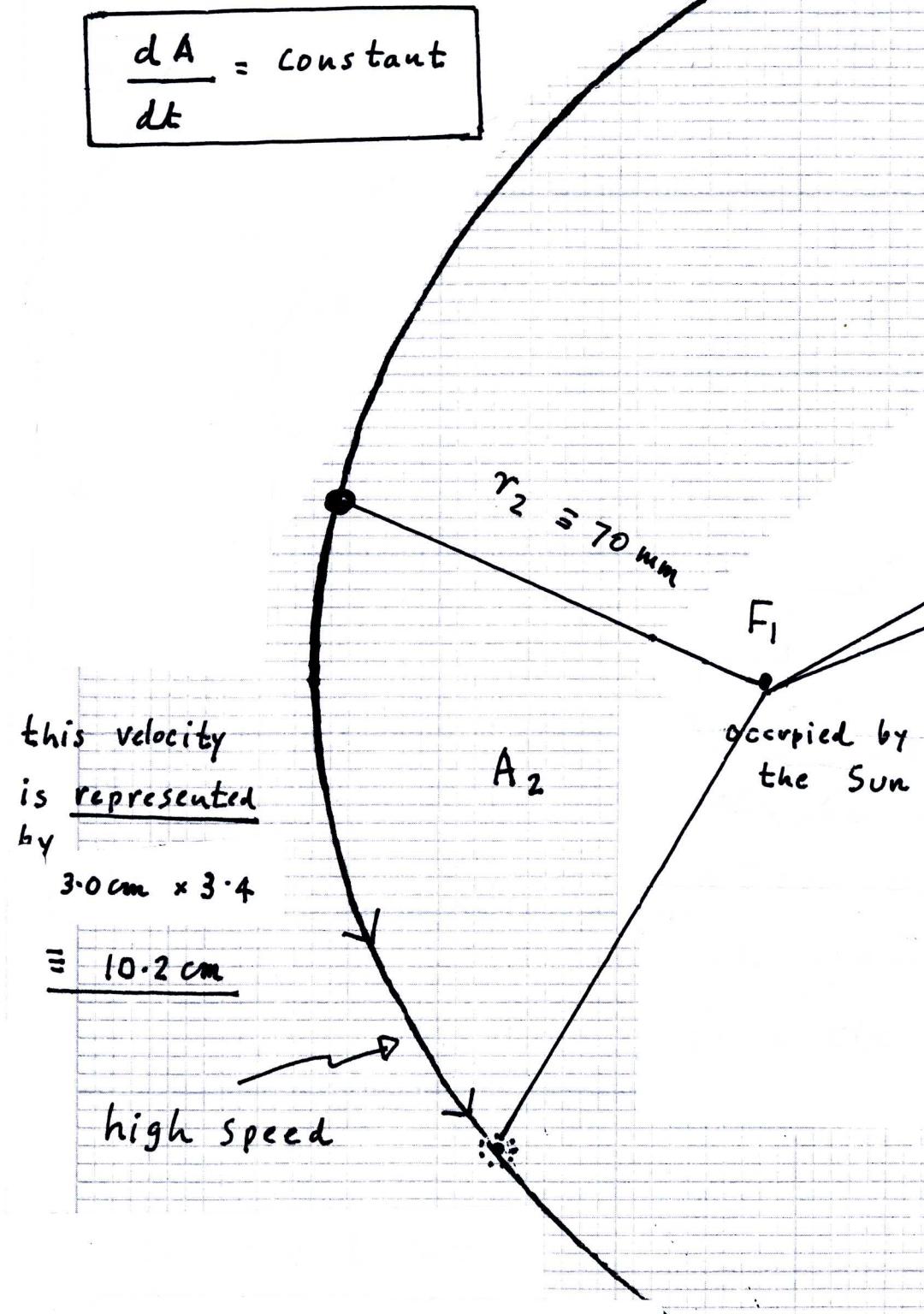
$$\frac{dA}{dt} = \text{constant}$$

this velocity  
is represented  
by

$$3.0 \text{ cm} \times 3.4$$

$$\equiv 10.2 \text{ cm}$$

high speed



equal areas,  
equal times

$$\frac{T_1}{T_2} = \frac{r_1^2}{r_2^2}$$
$$= \frac{235 \text{ mm}}{70 \text{ mm}}$$
$$= 3.4$$

the velocity is  
represented  
by 3.0cm

A planet  
orbiting the  
Sun

For permanent  
members of the  
Solar System,  
or permanent  
secondaries revolving  
around a primary.