Assignment 1
EAE 103

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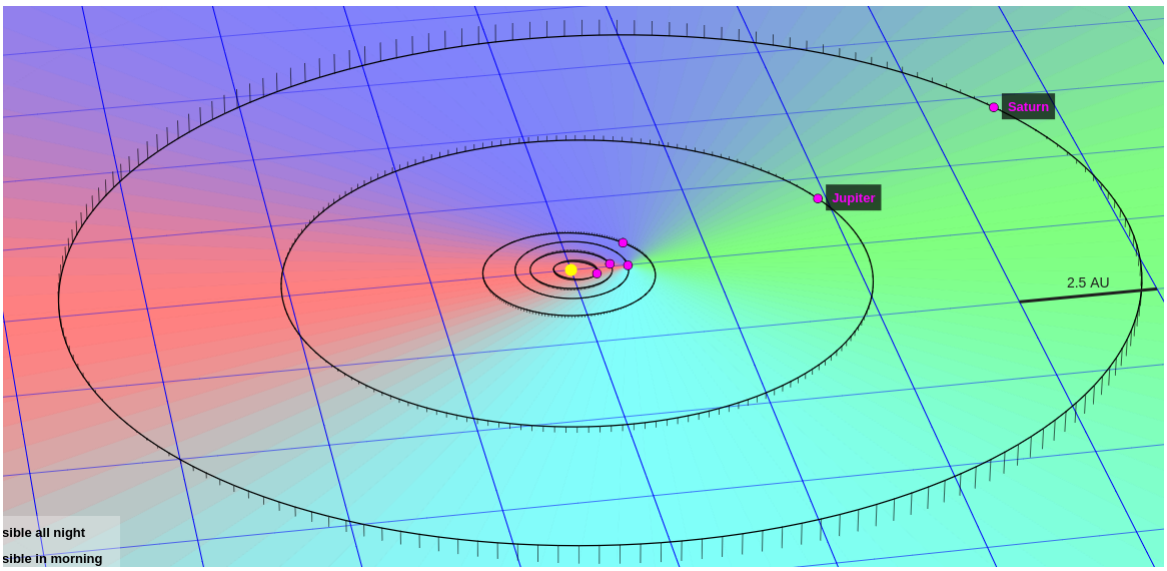
1.a



1.b Mars

1.c Jupiter, Saturn

2.

Table 7.1:

Name	Distance from Sun (AU)	Revolution Period (y)	Diameter (km)	Mass (10^{23} kg)	Density (g/cm^3)
Mercury	0.39	0.24	4,878	3.3	5.4
Venus	0.72	0.62	12,120	48.7	5.2
Earth	1.00	1.00	12,756	59.8	5.5
Mars	1.52	1.88	6,787	6.4	3.9
Jupiter	5.20	11.86	142,984	18,991	1.3
Saturn	9.54	29.46	120,536	5686	0.7
Uranus	19.18	84.07	51,118	866	1.3
Neptune	30.06	164.82	49,660	1030	1.6

2.a Jupiter is a distance of:

$$5.2\ AU \cdot \frac{93E6\ Million\ Miles}{1\ AU} \cdot \frac{1\ Foot}{1E6\ MillionMiles} = \frac{5.2 \cdot 93E6}{1E6} = 483.6\ ft.$$

2.b Saturn is a distance of:

$$9.54\ AU \cdot \frac{93E6\ Million\ Miles}{1\ AU} \cdot \frac{1\ Foot}{1E6\ MillionMiles} = \frac{9.54 \cdot 93E6}{1E6} = 887.22\ ft.$$

2.c Uranus is a distance of:

$$19.18\ AU \cdot \frac{93E6\ Million\ Miles}{1\ AU} \cdot \frac{1\ Foot}{1E6\ MillionMiles} = \frac{19.18 \cdot 93E6}{1E6} = 1783.74\ ft.$$

3.a The Moon's orbital path is tilted approximately 5 degrees relative to the Earth's orbital plane, known as the ecliptic. Eclipses are only possible when the Moon intersects this ecliptic plane during either a New Moon or a Full Moon.

3.b A node is the point at which the moon intersects the earths ecliptic

4.a New moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, third quarter, waning-crescent.

4.b This cycle takes 29.5 days and is called the **synodic period**