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The Planet "X "
Theoretical Calculation of The mean Orbital Velocity & Orbital Period

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Abstract

Review Theoretical Calculation for (mean orbital velocity orbital period) of The Planet "X", by using New equation formula to calculate the values of all planets of solar system' in theoretical mode. The Earth values use as constant to calculate all values of other planet.

Keywords

Solar System, Orbital Velocity, Planet X, Orbital Period.

Introduction

Caltech researchers have found evidence of a giant planet They nicknamed " Planet Nine" tracing a bizarre, highly elongated orbit in the outer solar system. It has a mass about 10 times that of Earth and orbits about 20 times farther from the sun on average than does Neptune, which orbits the sun at an average distance of 2.8 billion miles. This new planet would take between 10,000 and 20,000 years to make only one full orbit around the sun. The planets move around the sun in elliptical orbits, these orbits are not perfectly circular, but appear on both ends of buckling a little so that it looks oval. The orbits of the planets are not all elliptical; as the planet Mercury ,Venus and Pluto have circular orbits, while the other planets in the solar system have elliptical orbits, nevertheless close to the circular orbit, The proportion of buckling in the orbit of the planet Earth does not increase from 0.0034 moreover the orbit of the planet Mars in 0.0052 while splays of the proportion of the highest in the orbit of the planet Saturn, where the rate is 0.1076. During the rotation of the planet in its orbit, we find that there are two positions one of them the planet will be closer to the sun and the other position is far from the sun, planet's speed variations in its rotation around the sun depending on its position, the planet's speed will be high value when the planet is close to the sun.

In this paper focus on The Planet "X" moreover use the Earth values as constant to calculate all values of Solar system planets.

Equations:

Body (E) is located at a height (r = X) of another object (S) and the first body (E) Moving by circular motion speed (V).

$$V = \omega \,.\, X = 2\,\pi\, X\, \frac{n}{T}, \qquad V = 2\,\pi\, X\, \frac{n}{T},$$

$$V.T = 2\,\pi\;\; X\, n$$

$$X = \; V.\frac{T}{2\,\pi n} \quad , \text{ let } b = \frac{T}{2\,\pi n} \quad (\text{sec.})$$

$$X = b \,.\, V$$

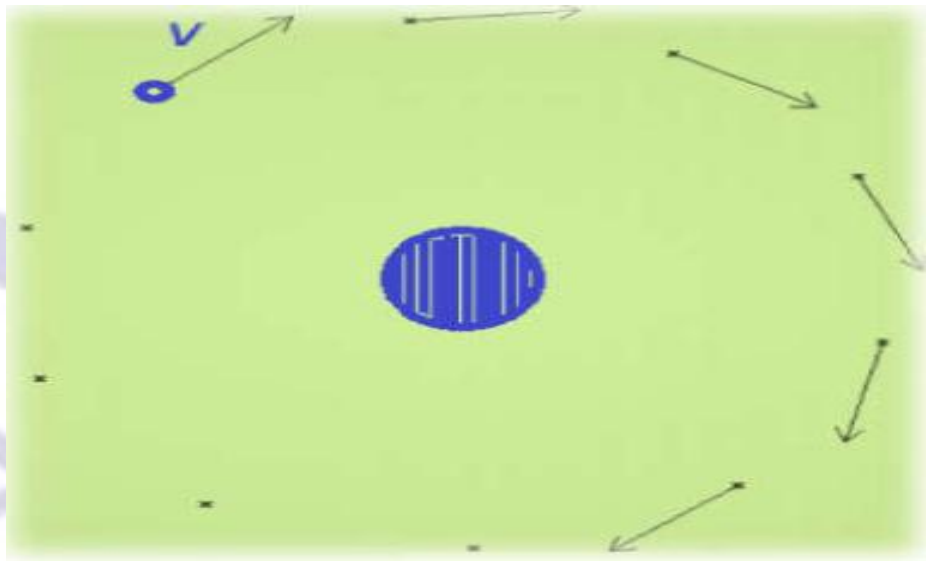

Fig.1
Body (E) moving by circular motion speed (V)

Two bodies the first at point Xa, the second at Xm

$$Xa = ba.Va\,,\; Xm = bm.Vm \qquad \text{unite is meter } (m)$$

$$ba = \frac{Ta}{2\,\pi n} \quad , \; bm = \frac{Tm}{2\,\pi n} \qquad \text{unite is second } (s)$$

$$\text{when} \quad Xm = Lm.Xa = Lm \,.\; ba.Va\,,$$

$$\text{at } Lm \text{ is constant } = \frac{Xm}{Xa} = \frac{bm.Vm}{ba.Va} = \frac{2\,\pi n\,Tm.Vm}{2\,\pi n\,Ta.Va} = \frac{Tm.Vm}{Ta.Va}$$

$$Tm.Vm = Lm \,.\; Ta.Va.$$

$$Tm = \; Lm \,.\; Ta.\frac{Va}{Vm} \quad \text{unite is second } (s)$$

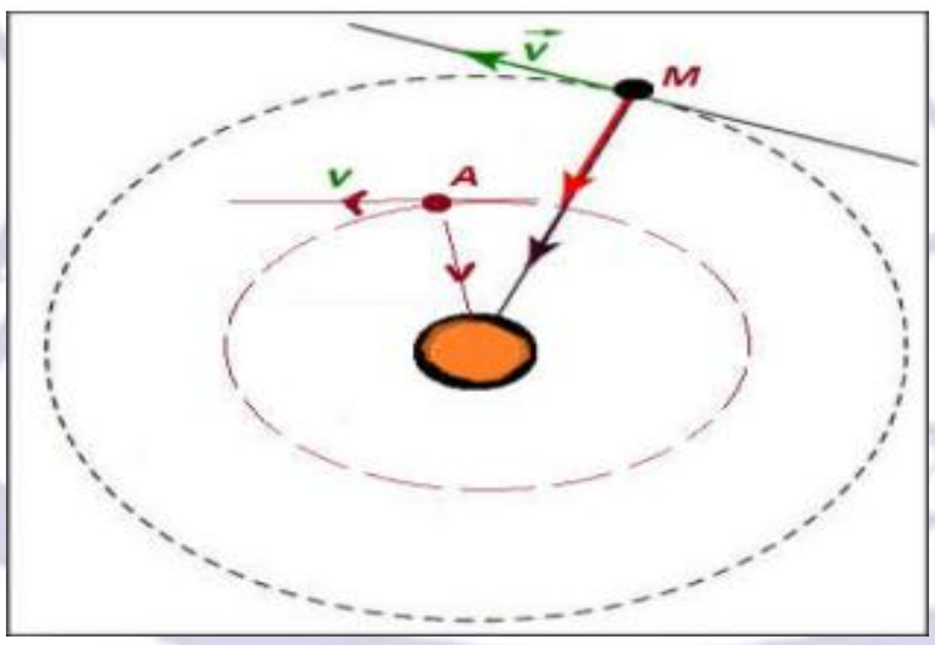

Fig.2 two bodies the first at point Xa, the second at Xm

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When we look at NASA measurement values of solar system as flow in this table:

the planet	X 10^3 km Or 10^6 m	T as days	T 10^6 s	T^2/X^3 $jour^2.km^{-3}$	T^2/X^3 $s^2.m^{-3}$
Mercury	57910	87,97	7,57984708	3,98482.10-11	2,95842.10-19
Venus	108200	224,7	19,3610508	3,98588.10-11	2,95921.10-19
Earth	149600	365,26	31,47226264	3,98483.10-11	2,95843.10-19
Mars	227940	686,98	59,19294472	3,98498.10-11	2,95855.10-19
Jupiter	778330	4332,71	373,3236244	3,98133.10-11	2,95583.10-19

Table .1 : NASA measurement values of solar system

we can see as *clear* $\frac{T^2}{x^3} = \frac{4\pi}{GM} = K = constant$

$$so \quad let \; \frac{Tm^2}{Xm^3} = \frac{Ta^2}{Xa^3} \;, \qquad Tm^2 \; Xa^3 = Ta^2 \; Xm^3$$

$$\frac{Tm^2}{Ta^2} = \frac{Xm^3}{Xa^3} = \frac{bm^2}{ba^2}$$

$$\frac{Tm}{Ta} = \frac{\sqrt{Xm^3}}{\sqrt{Xa^3}} = \frac{Xm\sqrt{Xm}}{Xa\sqrt{Xa}} = \frac{Lm\; Xa\sqrt{Xm}}{Xa\sqrt{Xa}} = \frac{Lm\; \sqrt{Xm}}{\sqrt{Xa}}$$

$$Tm = Lm\; Ta\frac{\sqrt{Xm}}{\sqrt{Xa}} \;,$$

$$Lm\; \mathrm{Ta}\;\frac{\mathrm{Va}}{\mathrm{Vm}} = \mathrm{Lm\; Ta}\;\frac{\sqrt{\mathrm{Xm}}}{\sqrt{\mathrm{Xa}}} \qquad , \qquad \frac{\mathrm{Va}}{\mathrm{Vm}} = \frac{\sqrt{\mathrm{Xm}}}{\sqrt{\mathrm{Xa}}}$$

$$\frac{\mathrm{Va}^2}{\mathrm{Vm}^2} = \frac{\mathrm{Xm}}{\mathrm{Xa}} = Lm$$

$$\mathrm{Xm\; Vm^2} = \mathrm{Xa\;\; Va^2} \quad , \quad \mathrm{Xa} = \mathrm{Xm}\,\frac{\mathrm{Vm^2}}{\mathrm{Va^2}} = \mathrm{ba\,.\,Va}$$

$$\mathrm{ba\,.\,Va} = \mathrm{Lm\;\; ba\,.\,Va}\,\frac{\mathrm{Vm^2}}{\mathrm{Va^2}} \quad , \quad \mathrm{Va^2} = \mathrm{Lm\,.\,Vm^2}$$

$$\mathrm{Vm^2} = \frac{\mathrm{Va^2}}{\mathrm{Lm}} \qquad , \qquad \mathrm{Vm} = \frac{\mathrm{Va}}{\sqrt{\mathrm{Lm}}}$$

$$Tm = \sqrt{\mathrm{Lm}^3}\;.\;Ta \qquad unite\;(\,days\,)$$

$$Tm = \sqrt{\mathrm{Lm}^3} = \frac{\sqrt{Xm^3}}{\sqrt{Xa^3}} \qquad unite\,(\,years\,)$$

By use data of solar system 3D simulator program

1- Planet Earth

Fig.3 . Planet Earth information

Apply my Equation:

$$\text{Earth orbit} = Xe = 149600000\ \text{Km}$$

$$\text{mean orbital velocity} = Ve = 29.79\ \text{Km/sec},$$

$$\text{orbital period} = Te = 365\text{days}$$

$$\text{so} \quad be = \frac{Xe}{Ve} = \frac{149600000\ \text{Km}}{29.79\ \text{Km/sec}} = 5.02 * 10^{6}\ \text{sec}$$

2- Planet Mercury

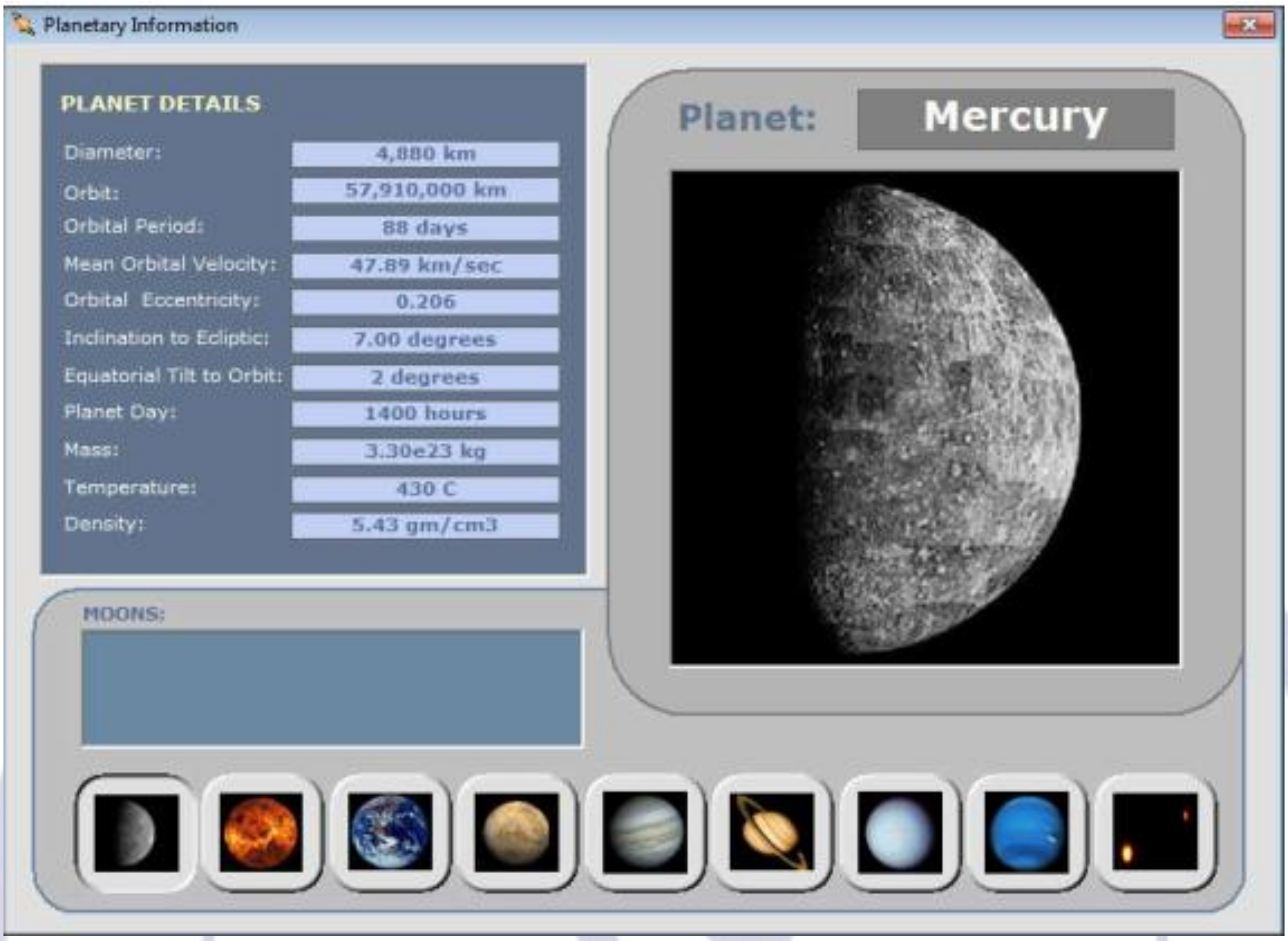

Fig.4: Planet Mercury information

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period. $X_M = 57910000$ Km ,

$$LM = \frac{XM}{Xe} = \frac{57910000}{149600000} = 0.387$$

$$VM = \frac{Ve}{\sqrt{LM}} = \frac{29.79}{\sqrt{0.38\ 7}} = 47.89 \text{ Km/sec}$$

$$TM = LM\, Te \frac{Ve}{VM} = Te\sqrt{(LM)^3} = 365\text{days} * \sqrt{(0.387)^3} = 87.9 \text{ days} = 88 \text{ days}$$

3- Planet Venus:

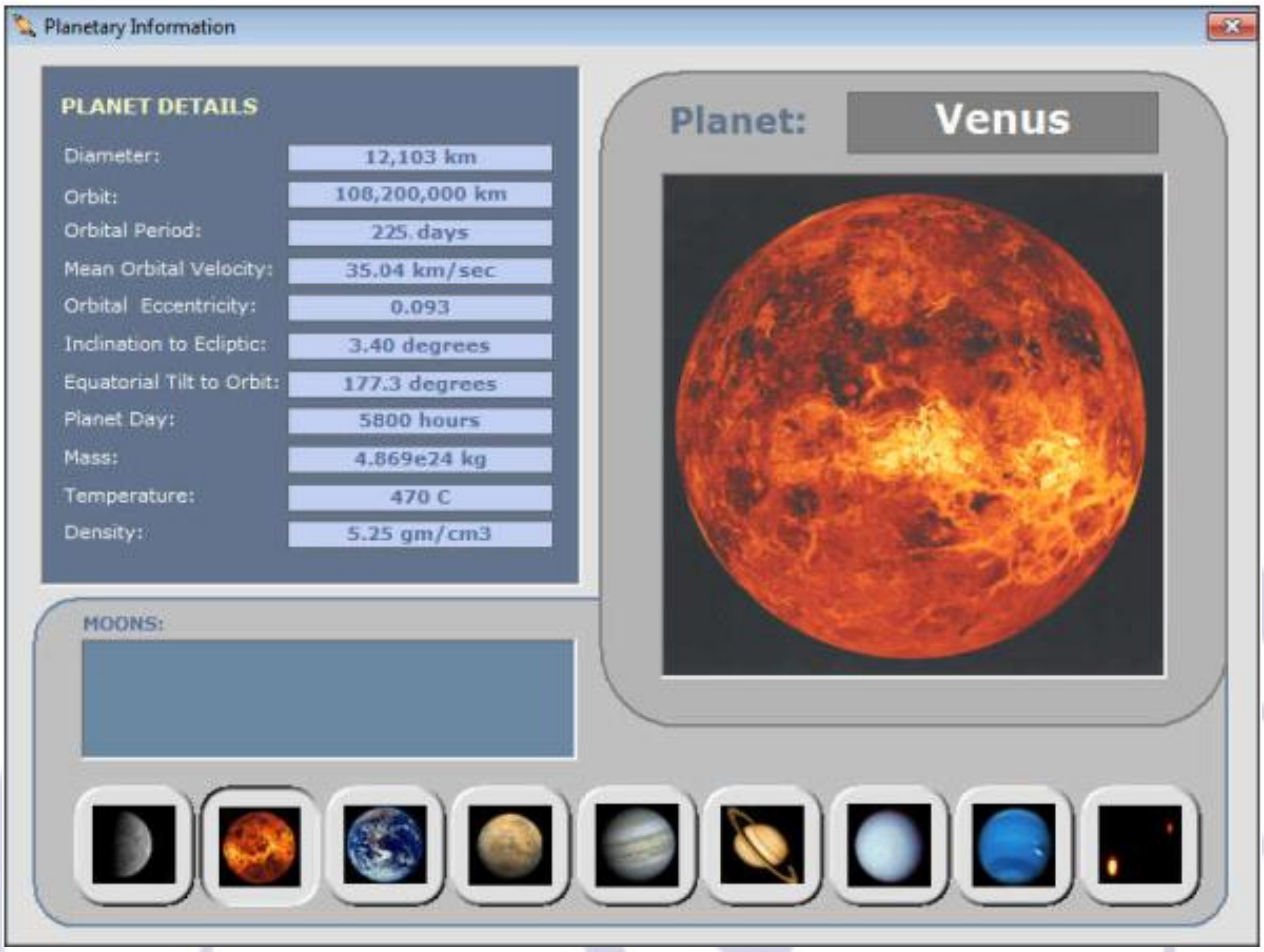

Fig.5: Planet Venus information

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period. $X_V = 108200000$ Km ,

$$Lv = \frac{Xv}{Xe} = \frac{108200000}{149600000} = 0.723$$

$$Vv = \frac{Ve}{\sqrt{Lv}} = \frac{29.79}{\sqrt{0.723}} = 35.03 \text{ Km/sec}$$

$$Tv = Lv\,Te\,\frac{Ve}{Vv} = Te\sqrt{(Lv)^3} = 365\text{days} * \sqrt{(0.723)^3} = 224.5 \text{ days} = 225 \text{ days}$$

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4- Planet Mars

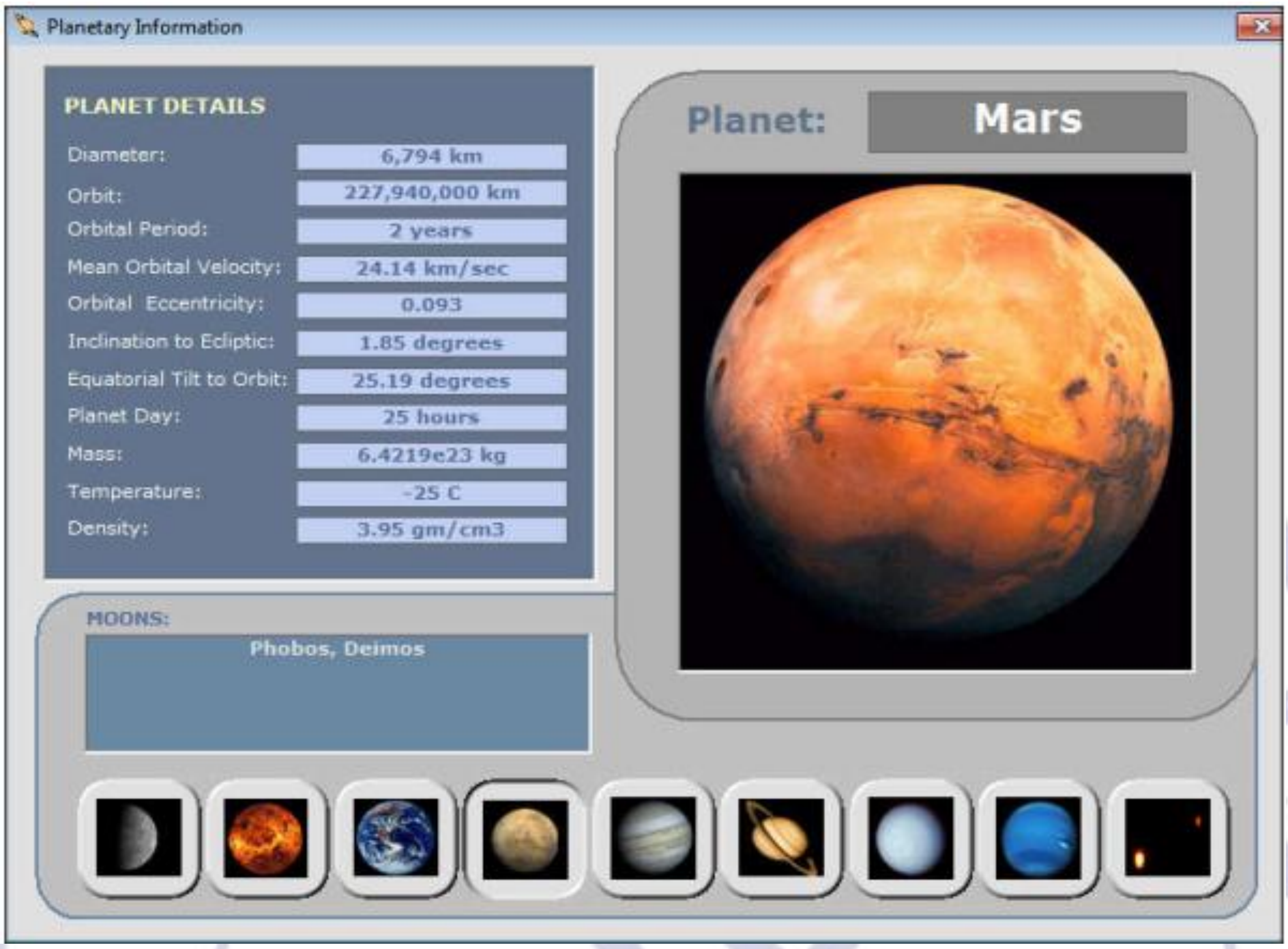

Fig.6: Planet Mars information

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period. $X_{mr} = 227940000$ Km ,

$$Lmr = \frac{Xmr}{Xe} = \frac{227940000}{149600000} = 1.524$$

$$Vmr = \frac{Ve}{\sqrt{Lmr}} = \frac{29.79}{\sqrt{0.723}} = 24.14 \text{ Km/sec}$$

$$Tmr = Lmr\,Te\,\frac{Ve}{Vmr} = \sqrt{(Lmr)^3} = \sqrt{(1.524)^3} = 1.9 \text{ year} = 2 \text{ years}$$

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5- Planet Jupiter:

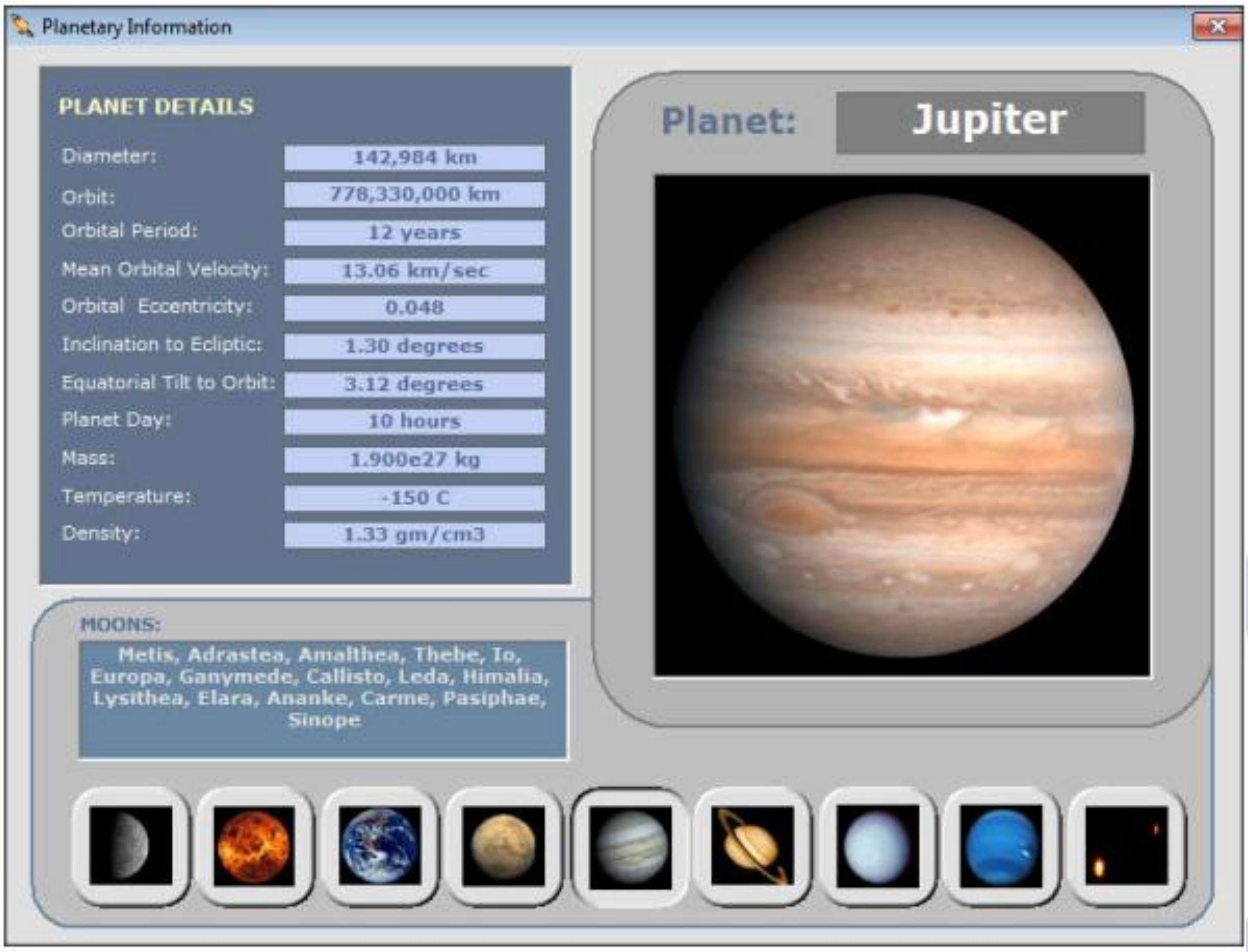

Fig 7 . Planet Jupiter information

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period $X_j = 778330000$ Km ,

$$Lj = \frac{Xj}{Xe} = \frac{778330000}{149600000} = 5.2$$

$$Vj = \frac{Ve}{\sqrt{Lj}} = \frac{29.79}{\sqrt{5.2}} = 13.06 \text{ Km/sec}$$

$$Tj = Lj\, Te \frac{Ve}{Vj} = \sqrt{(Lj)^3} = \sqrt{(5.2\ )^3} = 11.97 \text{ years} \approx 12 \text{ years}$$

6- Planet Saturn:

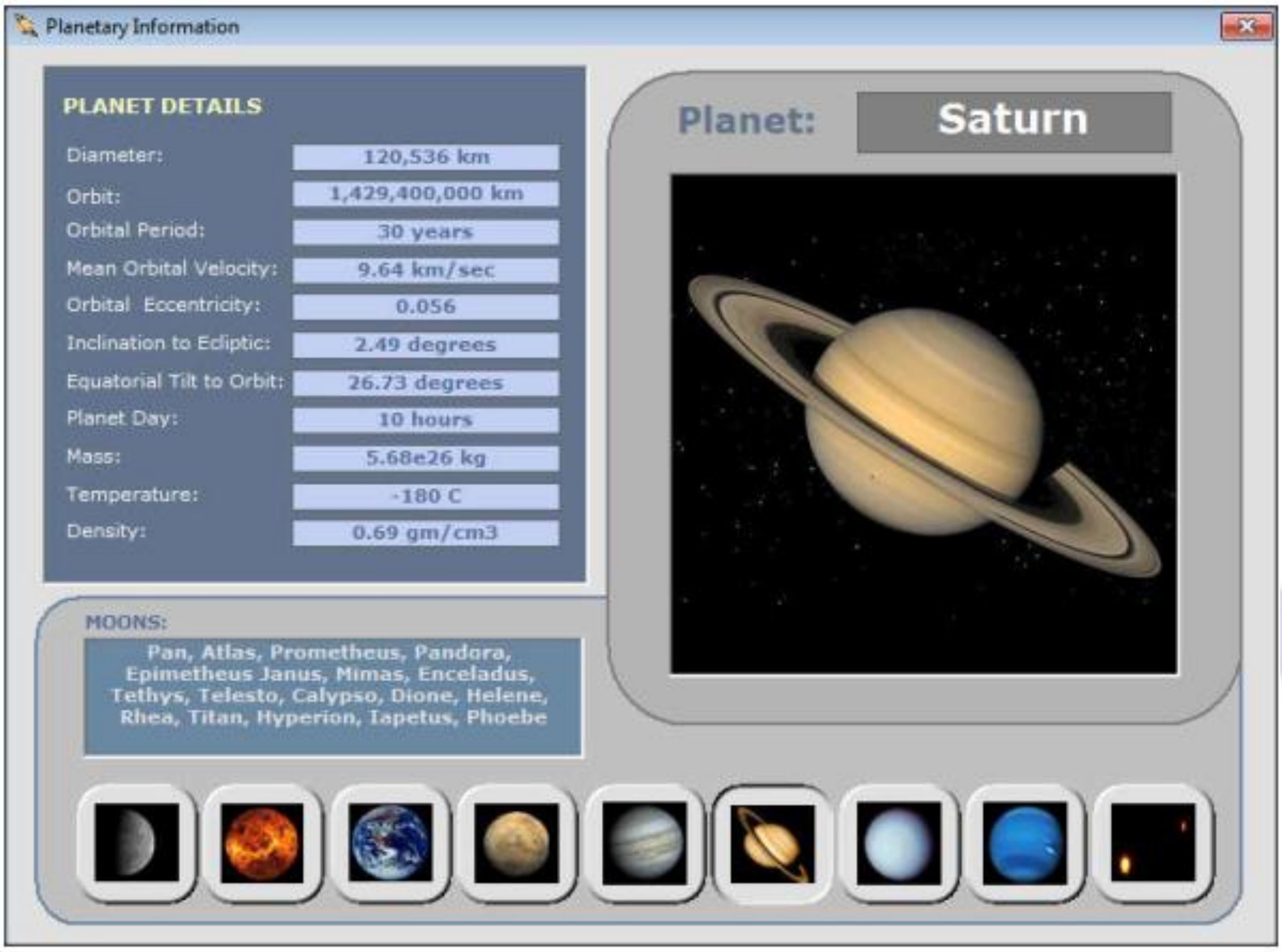

Fig.8 . Planet Saturn information

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period $X_s = 1429400000$ Km ,

$$Ls = \frac{Xs}{Xe} = \frac{1429400000}{149600000} = 9.6$$

$$Vs = \frac{Ve}{\sqrt{Ls}} = \frac{29.79}{\sqrt{9.6}} = 9.64 \text{ Km/sec}$$

$$Ts = Ls\,Te\,\frac{Ve}{Vs} = Te\sqrt{(Ls)^3} = 365\text{days} * \sqrt{(9.6\ )^3} = 29.8 \text{ years} \approx 30 \text{ years}$$

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7- Planet Uranus:

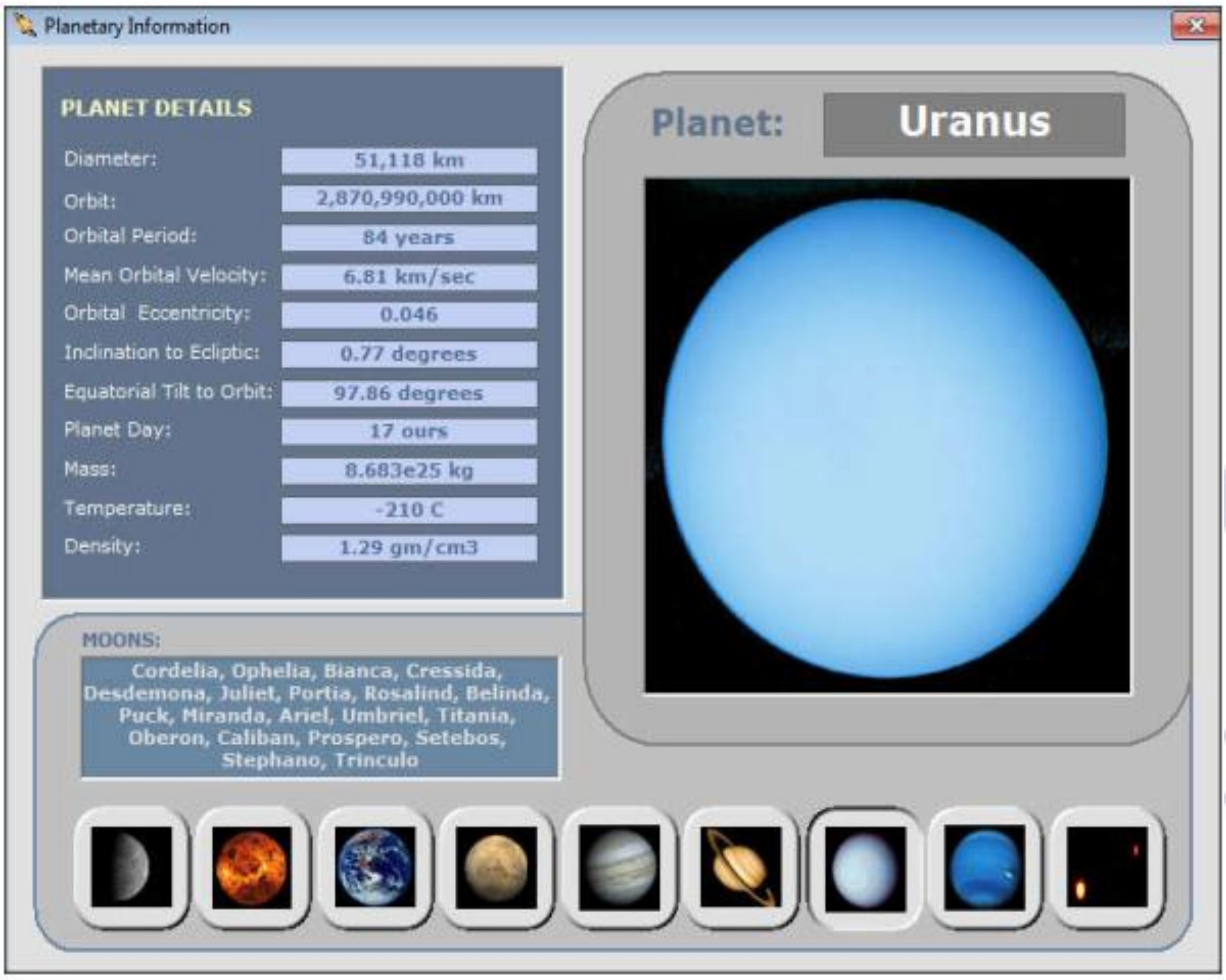

Fig.9 . Planet Uranus information

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period . X_u - 2870990000 Km ,

$$Lu = \frac{Xu}{Xe} = \frac{2870990000}{149600000} = 19.19$$

$$Vu = \frac{Ve}{\sqrt{Lu}} - \frac{29.79}{\sqrt{19.19}} = 6.8 \text{ Km/sec}$$

$$Tu = Lu\,Te\,\frac{Ve}{Vu} = Te\sqrt{(Lu)^3} = 365\text{days} * \sqrt{(19.19)^3} = 84.1 \text{ years} - 84 \text{ years}$$

8- Planet Neptune:

Fig.10 . Planet Neptune *information*

Apply my Equations:

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period. $X_n = 4504000000$ Km ,

$$Ln = \frac{Xn}{Xe} = \frac{4504000000}{149600000} = 30.1$$

$$Vn = \frac{Ve}{\sqrt{Ln}} = \frac{29.79}{\sqrt{30.1}} = 5.43 \text{ Km/sec}$$

$$Tn = Ln\, Te \frac{Ve}{Vn} = Te\sqrt{(Ln)^3} = 365\text{days} * \sqrt{(30.1)^3} = 165.1 \text{ years} \approx 165 \text{ years}$$

Pluto:

Fig.11 , Pluto information

Apply my Equations:

by using the given value of orbit we can calculate the mean orbital velocity and the orbital period. $X_p = 5913520000$ Km ,

$$Lp = \frac{Xp}{Xe} = \frac{5913520000}{149600000} = 39.53$$

$$Vp = \frac{Ve}{\sqrt{Lp}} = \frac{29.79}{\sqrt{39.53}} = 4.74 \text{ Km/sec}$$

$$Tp = Lp\,Te\,\frac{Ve}{Vp} = Te\sqrt{(Lp)^3} = 365\text{days} * \sqrt{(39.53)^3} = 248.3 \text{ years} = 248\text{years}$$

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9- Planet 'X':

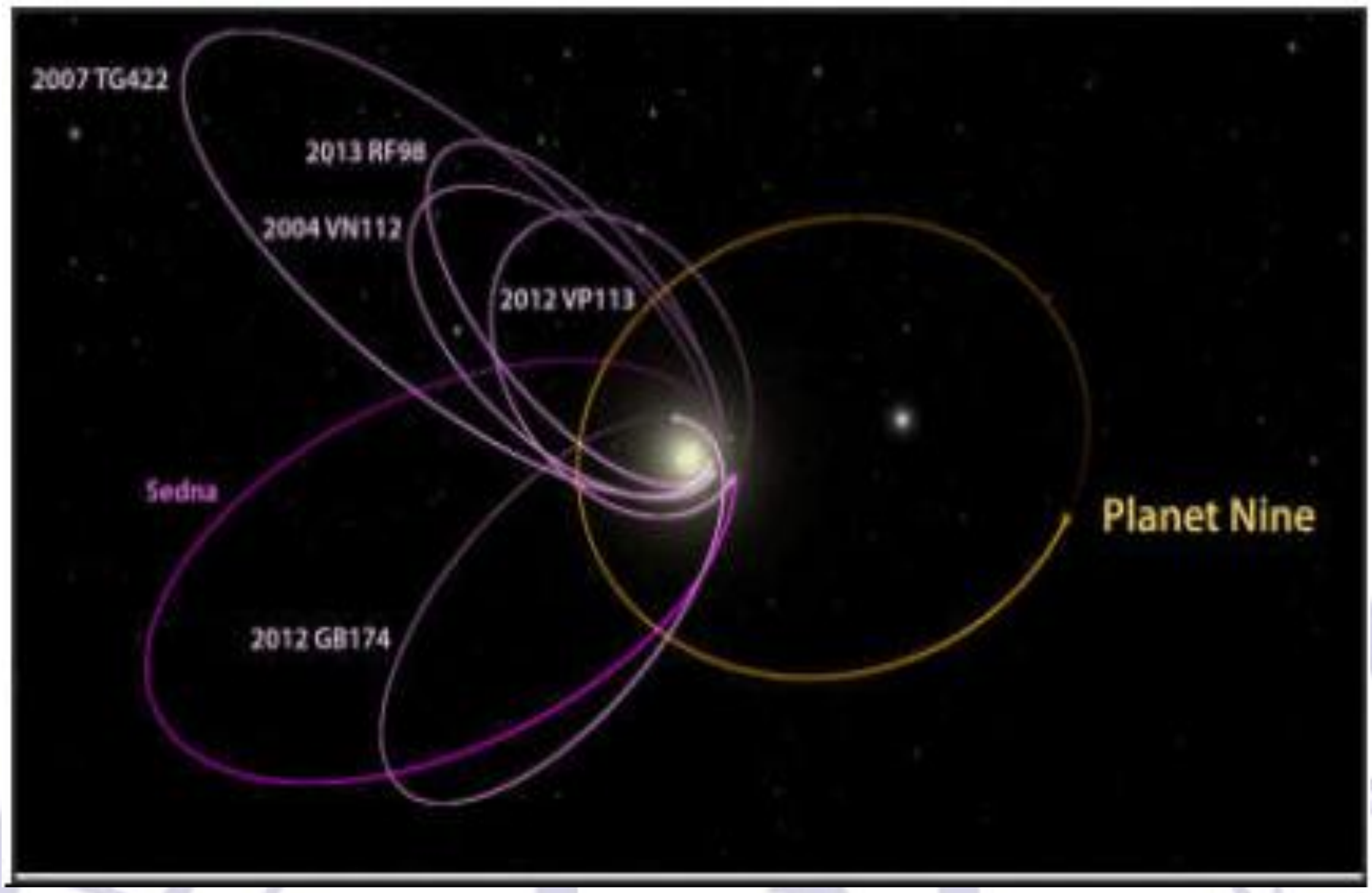

Fig.12: The six most distant known objects in the solar system with orbits exclusively beyond Neptune (magenta) all mysteriously line up in a single direction. Also, when viewed in three dimensions, they tilt nearly identically away from the plane of the solar system. Batygin and Brown show that a planet with 10 times the mass of the earth in a distant eccentric orbit anti-aligned with the other six objects (orange) is required to maintain this configuration.
Credit: Caltech/R. Hurt (IPAC); [Diagram created using World Wide Telescope.]
http://www.caltech.edu/news/caltech-researchers-find-evidence-real-ninth-planet-49523#sthash.uoXIhiD4.dpuf

- Has a mass about 10 times that of Earth,
- Orbits about 20 times farther from the sun on average than does Neptune (an average distance of 2.8 billion miles).

Hypothetical 'Planet X' (apply my Equations):

by using the given value of planet orbit we can calculate the mean orbital velocity and the orbital period. $Xx = 20\ Xn = 20 * 4504000000\ Km = 90080000000Km$

$$Lx = \frac{Xx}{Xe} = \frac{90080000000}{149600000} = 602.1$$

$$Vx = \frac{Ve}{\sqrt{Lx}} = \frac{29.79}{\sqrt{602.1}} = 1.214\ Km/sec$$

$$Tx = Lx\ Te\ \frac{Ve}{Vx} = \sqrt{(Lx)^3} = \sqrt{(602.1)^3} = 14774.165\ years$$

Conclusion:

By use this equation's formula and use the Earth values as constant we can get the Theoretical Calculation of (mean orbital velocity& orbital period) for The Planet " X" and all planets of solar system' in theoretical mode.

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