



LESSON: PLANETS IN PROPORTION

FORMULA SHEET

$$d = 2r \qquad r = \frac{d}{2}$$

$$C = 2\pi r \qquad C = \pi d$$

1 light year = 186,000 mi. /sec

1 light year = 300 000 km/sec

1 minute = **60** seconds

1 hour = **60** minutes

1 day = **24** hours

1 month = **30** days

1 year = **12** months

1 year = **365** days

$$\text{Volume of a sphere} = \frac{4}{3} \pi r^3$$

1 mile = 1.61 kilometers

1 kilometer = .62 miles

$d = r \times t$, where d = distance, r = rate, and t = time

The distance light travels in a year = 9.86×10^9 km

The Solar System (in Miles) –

To complete the table, use the following formulas

Circumference for any of the planets: $\frac{(\text{Equatorial Diameter in miles}) (\pi)}{2}$

Volume: $(4/3) (\pi) \frac{(\text{Equatorial Diameter in miles})^3}{2}$

Diameter with respect to Earth:
(note: 7921 is the equatorial diameter in miles of the earth) $(\text{Equatorial Diameter in miles})/7921$

Time by Jet from Earth @ 800 mph: $\frac{(\text{Minimum Distance from Earth})}{800 \text{ mph} \times 10^6}$

Time by Rocket from Earth @ 25,000 mph: $\frac{(\text{Minimum Distance from Earth})}{25,000 \text{ mph} \times 10^6}$

Light Year Time from Earth@
186,000 mi/sec: $\frac{(\text{Minimum Distance from Earth})}{186,000 \text{ mph} \times 10^6}$

The Solar System (in Kilometers) –

To complete the tables use the following formulas

Circumference for any of the planets: $(\text{Equatorial Diameter in kilometers}) (\pi)$

Volume: $(4/3) (\pi) \frac{(\text{Equatorial Diameter in kilometers})^3}{2}$

Diameter with respect to Earth: $(\text{Equatorial Diameter in kilometers}) / 12,756$
(note: 7921 is the equatorial diameter in miles of the earth)

Time by Jet from Earth @
1300 km/h: $(\text{Minimum Distance from Earth}) / 1300 \text{ km/h} \times 10^6$

Time by Rocket from Earth
@ 40,000 km/h: $(\text{Minimum Distance from Earth}) / 40,000 \text{ km/h} \times 10^6$

Light Year Time from Earth @
300,000 km/sec: $(\text{Minimum Distance from Earth}) / 300,000 \text{ km/h} \times 10^6$