Exploring Saturn's Moons

Moon	Distance
Aegaeon	0.047039
Hyperion	0.415918
Polydeuces	0.105982
Dione	0.105985
Mimas	0.052068
Titan	0.343159
Helene	0.105990
Telesto	0.082741
Rhea	0.148029
Enceladus	0.066245
Calypso	0.082739
Iapetus	1.000000

Saturn's moon Iapetus is located at a distance of 3.6 million kilometers from Saturn, but Saturn has 24 moons located closer to Saturn than Iapetus. The table above gives the distances from Saturn of a few of the well-known moons in terms of the distance to Iapetus. For example at a distance of '0.5' its true distance is 0.5 x the distance to Iapetus or 1,800,000 km.

Problem 1 – Order the moons in terms of their increasing distance from Saturn by sorting the decimal values from smallest to largest.

Problem 2 - Which moon is closer than 0.35 but farther away than 0.33?

Problem 3 – Which pair of moons are within 0.000002 of each other?

Problem 4 – Which two moons differ in distance by 0.29612?

Problem 1 –   Order the moons in terms of their increasing distance from Saturn by sorting the decimal values from smallest to largest.

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Aegaeon	0.047039	Aegaeon	0.047039
Hyperion	0.415918	Mimas	0.052068
Polydeuces	0.105982	Enceladus	0.066245
Dione	0.105985	Calypso	0.082739
Mimas	0.052068	Telesto	0.082741
Titan	0.343159	Polydeuces	0.105982
Helene	0.105990	Dione	0.105985
Telesto	0.082741	Helene	0.105990
Rhea	0.148029	Rhea	0.148029
Enceladus	0.066245	Titan	0.343159
Calypso	0.082739	Hyperion	0.415918
Iapetus	1.000000	Iapetus	1.000000

Problem 2 - Which moon is closer than 0.35 but farther away than 0.33?

Answer: **Titan is located at 0.343159**

Problem 3 – Which pair of moons are within 0.000002 of each other?

Answer: **Calypso** is at 0.082739 and **Telesto** is at 0.082741 which differ by 0.000002

Problem 4 – Which two moons differ in distance by 0.29612?

Answer: **Titan** is at 0.343159 and **Aegaeon** is at 0.047039 which differ by 0.29612.