

Harold's Holiday

My pet brick Harold recent returned from the holiday of a life time: An all expenses paid trip around the solar system. The biggest difference Harold noticed was how his weight changed on different parts of the journey.

Harold is used to calculating his weight on Earth using his mass of 3 kg.

On Earth gravitational field strength, $g = 9.8 \text{ N/kg}$

His weight is: $W = m \times g$

$$W = 3 \times 9.8$$
$$\underline{W = 29.4 \text{ N}}$$

Holiday stops	"g" (N/kg)
Started at Earth Base Bursay	9.8
First stop the Moon for burgers	1.6
Re-fuelled on Mercury	4
Stopped on the Sun for Photos	274
Long haul through outer space	0
Jupiter station restaurant	25
Saturn: more photos	10
Back to Mars for chocolate bars	4
Home to Earth	9.8

1. What is mass?
2. What is Harold's mass?
3. Calculate Harold's weight for each stop on his holiday list (shown in the table).
4. Are there any problems that might have occurred at some of the stops?
5. On Which two planets will Harold weigh the same?
6. On which planet will Harold weigh
 - a. The most?
 - b. The least?
7. What is Harold's mass in outer space?

Next year Harold is planning a short break to each of the moons of Jupiter.

8. Find out what his weight will be on six of Jupiter's moons. (HOMEWORK)