



**Problem
213**

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An astro-surveying team is to determine the maximum full solar eclipse distance, d' , as measured from the center of the Sun (radius R') for each of its four inner planets. R is the radius of a given planet and D is its distance from planet center to Sun center.

1. Determine d' in terms of D , R , and R'
2. If $R' = n \times R$, rewrite d' in terms of n and D

Using the following values: $R'(\text{Sun}) = 695 \times 10(3)$ km, determine n and d' for each of the planets

3. Mercury: $R = 2,439$ km; $D = 57.9 \times 10(6)$ km
4. Venus: $R = 6,052$ km; $D = 108.2 \times 10(6)$ km
5. Earth: $R = 6,378$ km; $D = 149.6 \times 10(6)$ km
6. Mars: $R = 3,396$ km; $D = 227.9 \times 10(6)$ km
7. Calculate d'/D for each planet
8. Does the pattern of d'/D suggest anything about the current orbit of Mars?