

Scientific Notation Worksheets

1. All planets revolve around the sun in elliptical orbits. Uranus's furthest distance from the sun is approximately $3.004 \times 10^9 \text{ km}$, and its closest distance is approximately $2.749 \times 10^9 \text{ km}$. Using this information, what is the average distance of Uranus from the sun?

2. Here are the masses of the so-called inner planets of the solar system.

Mercury: $3.3022 \times 10^{23} \text{ kg}$

Earth: $5.9722 \times 10^{24} \text{ kg}$

Venus: $4.8685 \times 10^{24} \text{ kg}$

Mars: $6.4185 \times 10^{23} \text{ kg}$

What is the average mass of all four inner planets? Write your answer in scientific notation.

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1. All planets revolve around the sun in elliptical orbits. Uranus's furthest distance from the sun is approximately 3.004×10^9 km, and its closest distance is approximately 2.749×10^9 km. Using this information, what is the average distance of Uranus from the sun?

$$\begin{aligned} \text{average distance} &= \frac{(3.004 \times 10^9) + (2.749 \times 10^9)}{2} \\ &= \frac{(3.004 + 2.749) \times 10^9}{2} = \frac{5.753 \times 10^9}{2} = 2.8765 \times 10^9 \end{aligned}$$

On average, Uranus is 2.8765×10^9 km from the sun.

2. Here are the masses of the so-called inner planets of the solar system.

Mercury: 3.3022×10^{23} kg **Earth:** 5.9722×10^{24} kg

Venus: 4.8685×10^{24} kg **Mars:** 6.4185×10^{23} kg

What is the average mass of all four inner planets? Write your answer in scientific notation.

$$\begin{aligned} \text{average mass} &= \frac{(3.3022 \times 10^{23}) + (4.8685 \times 10^{24}) + (5.9722 \times 10^{24}) + (6.4185 \times 10^{23})}{4} \\ &= \frac{(3.3022 \times 10^{23}) + (48.685 \times 10^{23}) + (59.722 \times 10^{23}) + (6.4185 \times 10^{23})}{4} \\ &= \frac{(3.3022 + 48.685 + 59.722 + 6.4185) \times 10^{23}}{4} \\ &= \frac{118.1277 \times 10^{23}}{4} = 29.531925 \times 10^{23} \\ &= 2.9531925 \times 10^{24} \end{aligned}$$

The average mass of the inner planets is 2.9531925×10^{24} kg.

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