Scientific Notation Worksheets

1. On average, Mercury is about $57{,}000{,}000\ km$ from the sun, whereas Neptune is about $4.5 \times 10^9\ km$ from the sun. What is the difference between Mercury's and Neptune's distances from the sun?

2. The mass of Earth is approximately $5.9 \times 10^{24}\ kg$, and the mass of Venus is approximately $4.9 \times 10^{24}\ kg$.

a) Find their combined mass.

b) Given that the mass of the sun is approximately $1.9 \times 10^{30}\ kg$, how many Venuses and Earths would it take to equal the mass of the sun?

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1. On average, Mercury is about $57{,}000{,}000\ km$ from the sun, whereas Neptune is about $4.5 \times 10^9\ km$ from the sun. What is the difference between Mercury's and Neptune's distances from the sun?

$$57\,000\,000 = 5.7 \times 10^7 4.5 \times 10^9 - 5.7 \times 10^7$$
$$= (4.5 \times 10^2) \times 10^7 - 5.7 \times 10^7$$
$$= 450 \times 10^7 - 5.7 \times 10^7$$
$$= (450 - 5.7) \times 10^7$$
$$= 444.3 \times 10^7$$
$$= 4.443 \times 10^2 \times 10^7$$
$$= 4.443 \times 10^9$$

The difference in the distance of Mercury and Neptune from the sun is $4.443 \times 10^9\ km$.

2. The mass of Earth is approximately $5.9 \times 10^{24}\ kg$, and the mass of Venus is approximately $4.9 \times 10^{24}\ kg$.

a) Find their combined mass.

$$5.9 \times 10^{24} + 4.9 \times 10^{24}$$
$$= (5.9 + 4.9) \times 10^{24}$$
$$= 10.8 \times 10^{24}$$
$$= 1.08 \times 10 \times 10^{24}$$
$$= 1.08 \times 10^{25}$$

The combined mass of Earth and Venus is $1.08 \times 10^{25}\ kg$

b) Given that the mass of the sun is approximately $1.9 \times 10^{30}\ kg$, how many Venuses and Earths would it take to equal the mass of the sun?

$$\frac{1.9 \times 10^{30}}{1.08 \times 10^{25}}$$
$$= \frac{1.9}{1.08} \times \frac{10^{30}}{10^{25}}$$
$$= 1.75925\ldots \times 10^5$$
$$\approx 1.8 \times 10^5$$

It would take approximately 1.8×10^5 *Venuses and Earths to equal the mass of the sun.*