

**Answer on Question #71113, Physics / Mechanics**

**Question** What is the gravitational force that the sun exerts on the earth? The mass of the earth is  $5.98 \cdot 10^{24}$  and the sun's mass is  $1.99 \cdot 10^{30}$ . The earth-sun distance is  $1.50 \cdot 10^{11}$  meters. Show Your work!!!!

**Solution** The force is proportional to product of masses and inversely proportional to square of distance:

$$F = G \frac{Mm}{r^2} = 6.67 \cdot 10^{-11} \frac{1.99 \cdot 10^{30} \cdot 5.98 \cdot 10^{24}}{(1.5 \cdot 10^{11})^2} \approx 35.3 \cdot 10^{21} \text{ N}$$