Math 1010 August 29, 2017 HW5

Do problems 1.6 #7-85 odds from your text.
Use the rules of exponents to simplify the following.

1. $3^6 3^{10}$

2. $-4x^5x^{-7}$

3. $\frac{y^{16}}{y^{-7}}$

4. $(3x^3)^3$

5. $(x^3)(x^{-7})(x^2)^{10}$

6. $\frac{(-2x^4)^4}{(4x^3)^2}$

7. $\frac{(3xy^2)^2 x^6 y^5}{x^{10}y^{12}}$

8. $\frac{x^{-4}}{x^{15}}$

9. $\left(\frac{x^2y^{11}}{x^5y^7}\right)^{-2}$

10. Convert to scientific notation:
.0000 0000 0023

11. Convert to scientific notation:
$31,400,000,000,000,000,000,000,000.$

12. Convert to a decimal:
8.8×10^7

13. Convert to a decimal:
-5.5×10^{-10}

14. Compute using a calculator:
$(2.05 \times 10^{17})(-7.8 \times 10^{-12})$

15. There are about 8.9×10^{56} hydrogen atoms (protons) available in the sun for fusion. Currently, about 3.7×10^{38} hydrogen atoms per second are consumed. How long, in years, could this process continue assuming that this rate stays constant?