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AST 10: Homework 1b

1. Matter is one of two basic entities that make up the world. What is the other?
2. What are the four basic forces? Which of these is most important in determining the large-scale structure of the Universe? Why?
3. Calculate (a) $10^3 \times 10^{-3}$, and (b) $10^3 \div 10^{-3}$.
4. If $y \propto x$ and x triples, what will happen to y ?
5. If $y \propto 1/x$ and x triples, what will happen to y ?
6. If $y \propto 1/x^2$ and x triples, what will happen to y ?
7. If you unexpectedly gain mass overnight to double what you were, would the gravitational force between you and the earth change, and by how much?