

**Conceptual Physics****NAME:**

**Homework 0: What is this Thing Science?:** Homeworks are due usually a day after the corresponding chapter is completed. Homeworks will be marked for apparent completeness and some problems will/may be marked in detail. Make the full-answer solutions sufficiently detailed that the grader can follow your reasoning. Solutions will be posted eventually after the due date. The solutions are intended to be (but not necessarily are) super-perfect and often go beyond a fully correct answer. Some problems won't be given answers. These are typically answer problems where the instructor's answer would not help a student to learn.

1. "Let's play *Jeopardy!* For \$100, the answer is: He was the first person to measure the circumference of the Earth."

Who is \_\_\_\_\_, Alex?

- a) Parmenides (early 5th century BCE)
  - b) Democritus (ca. 460–ca. 370 BCE)
  - c) Aristotle (384–322 BCE)
  - d) Aristarchus of Samos (c. 310–c. 230 BCE)
  - e) Eratosthenes (c. 276–c. 195 BCE)
2. "Let's play *Jeopardy!* For \$100, the answer is: This theory allowed the relative positions of the planets to be deduced."  
What is the \_\_\_\_\_ solar system theory, Alex?
    - a) heliocentric
    - b) geocentric
    - c) marsocentric
    - d) lunacentric
    - e) plutocentric
  3. Define science in one sentence. Now define science in a paragraph of a few sentences.
  4. Is the scientific method a scientific theory?
  5. Briefly discuss the need for units and how units are set.
  6. Use pinhole projection to observe the Sun. You will need the Sun in a clear sky region. About how big an image can create? Can you see sunspots? Incidentally, can you see narrow dark and bright fringes just near the edges of shadows (e.g., of a pencil)? You need to look really closely. A magnifying glass might help.