1. Write the momentum and impulse formula two different ways. Explain what each means and does.

2. Consider the formula for the law of conservation of momentum with two objects:
    a. What is it?
    b. What can it be used to find?
    c. If two objects are stuck together (either before an event or after), should you consider them to be one mass or two separate masses, or does it not matter?

3. During an interaction between two objects, is momentum always conserved? Is Kinetic energy always conserved? If the answer to either of these questions is no, give examples of when there is conservation and when there is not.

4. Describe each of the following as totally elastic, totally inelastic, or inelastic (but not totally). For each one, provide two lines of evidence for your answer.

5. If, in a problem, you are given impact force and impact time data, what should you do? And where do you go from there?

6. What are the two primary units for momentum that we have used in this unit? Do you know why they are equivalent?

7. Which of these is (are) <u>always</u> true for any event involving just two objects: A) if any momentum is gained by one, an equal amount of momentum is lost by the other, B) the total amount of combined momentum of the two objects stays the same during the event, C) The two objects experience equal and opposite impulses.

8. Use the impulse and momentum formula to show how a "a knowledge of impulse and momentum can save lives."

9. When a supernova explodes, a dying star first collapses. Following the collapse, outer layers blast out into space at high speeds.
    a. Explain why the outer layers blast away at such high speeds.
    b. What happens to the net momentum of the dying star during the collision between the collapsing layers and the star's core?