

1. Suppose you drive 100 miles, starting at 3:00 PM and finishing at 5:00 PM on the same day.
 - a. What is your average speed during that trip? _____
 - b. What did you use as a "divisor" in 1a? _____ (A divisor is the thing you *divide* by.)
2. Suppose your car has elastic seat belts. When will they be stretched? Choose the correct answer(s).
 - a. When the car accelerates forward, as in a drag race.
 - b. When the car has been moving forward and suddenly collides with a tree.
 - c. At the moment when the car is struck from behind.
3. Imagine that you are in an elevator which is moving **upward**: What do you feel when the brakes are applied to stop the upward motion? *Choose the best answer:*
 - a. heavier than normal
 - b. lighter than normal
 - c. same as always
4. What do you feel if the brakes are applied while the elevator is moving **downward**?
5. What happens to you if the elevator hits a solid obstacle while moving upward at high speed?
6. A high school student once wrote: "Weight is the measurement of how the object amounts up to the average of what the same objects are on this earth."
 - a. Is that definition clear enough to satisfy you? _____
 - b. Write your own definition of "weight". Write it clearly enough so that a person just learning English could understand it.
7. Which phrase best describes the motion of a hockey puck as it coasts across the ice?
 - a. gradually increasing speed
 - b. constant speed
 - c. gradually decreasing speed
8. If you try to slide the puck in the same way on a horizontal sheet of glass, it stops pretty quickly.
 - a. What causes it to slow down and stop? _____
 - b. Why doesn't it slow down so rapidly on ice?
9. Another student once wrote that "Thirty-five is equal." What's wrong with that sentence?
10. Suppose triangle ABC is similar to triangle DEF. Complete the following equations to describe how corresponding parts of these triangles are related:
 - a. $AB/AC = DE/(_)$
 - b. $AC/BC = (_)/EF$
11. Draw an acute angle. Label it CAB. Then construct a new line BD perpendicular to AB, and also a new line CE perpendicular to AC. (All these lines lie in a plane.)
 - a. If BD and CE are extended without limit in both directions, will they intersect? _____ (If not, they must be parallel.)
 - b. How is the acute angle formed by BD and CE related to the original angle CAB?
12. Here's a familiar example of cause and effect: "Smoking causes people to get lung cancer." Notice that in this example both the cause and the effect are actions. Is that always the case? _____ *If not, please describe an example of cause and effect in which no actions are involved.*
13. The four curved lines below represent the sides of four hills that are going to be made into ski slopes. On each hillside label the point where the hill is "steepest". In other words, please circle the dot on each curve where the slope has the greatest magnitude.

