Multiple choice: choose the best answer for each question.

1) Two rockets approach one another. As seen from earth, each has a speed of 0.85c. Rocket A fires a laser beam towards rocket B. Rocket B sees this laser beam approach with speed:
   A) 0.15c
   B) 1.7c
   C) c
   D) zero

2) Firecracker A is 500m from you. Firecracker B is 700m from you. You see (with your eyes) both firecrackers explode at the same time. Define event A to be “firecracker A explodes” and event B to be “firecracker B explodes”. Which is true in your reference frame:
   A) Firecracker A explodes at the same time as firecracker B
   B) Firecracker A explodes before firecracker B
   C) Firecracker B explodes before firecracker A
   D) Not enough info to determine the answer

3) Matt stands midway between a pole and a tree. Each is suddenly hit by a separate bolt of lightning. Matt sees the bolts hit each at the exact same time. Nancy is flying by her rocket at 0.5c, in the direction from the tree toward the pole. The lightning hits the tree at the exact moment she passes by it.

   Define Event 1 to be “lightning strikes tree” and Event 2 to be “lightning strikes pole”. In Nancy’s reference frame:
   A. Event 1 occurs at the same time as Event 2
   B. Event 1 cannot occur at the same time as Event 2

   Define Event 1 to be “light from tree strike reaches Matt” and Event 2 to be “light from pole strike reaches Matt”. In Nancy’s reference frame:
   A. Event 1 occurs at the same time as Event 2
   B. Event 1 occurs after Event 2
   C. Event 2 occurs before Event 2