## Quiz 8 Calculus 1 Due 11/8/21

Each question is worth 5 points. Show good justification for full credit. Open book, open notes, feel free to collaborate with anyone, but try to make sure you understand what you turn in well.

1. $[\mathrm{B} \& \mathrm{C}] \mathrm{A}$ load is to be suspended 6 m below a high ceiling using cables attached to two supports that are 2 m apart. How far below the ceiling should the cables be joined to minimize the length of cable used?
2. [B\&C] What is the length of the longest pole that can be carried horizontally around a corner at which a $3-\mathrm{ft}$ corridor and $4-\mathrm{ft}$ corridor meet at a right angle?
3. A dog can run at a rate of $18 \mathrm{ft} / \mathrm{s}$ on the shore, but only swims at a rate of $6 \mathrm{ft} / \mathrm{s}$. The dog is currently standing 40 feet from the shore, which runs directly north and south. If a frisbee is thrown so that it lands 30 feet out into the water and 50 feet north of the dog's starting location, where should the dog enter the water to minimize his time to get to the frisbee?
