Rates of change apply to many different situations, not just distance-time or motion. While we have not discussed these specific types of problems, try and apply what you have learned about rates of change to answer the questions.

* 1. Water pours out of the bottom of a cylinder and out of a cylindrical cone (see diagram) at a constant rate. Sketch a graph that might show the height of the water as a function of time (height-time graph) first for the cylinder and then for the cylindrical cone.

height

height

* 1. There is a hole in a tank of water. A significant amount of water is pouring out of the hole. A special sealant is put into the tank. After a half an hour it starts to gradually clog up the hole until no more water leaks out. Sketch a graph of the amount of water in the tank as a function of time (amount of water-time graph) that would reasonably match the given description.