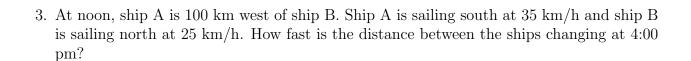
Math 2A Worksheet: 3.9 Related Rates

Write your names and Student ID numbers at the top of the page

1. A cylindrical tank with radius 5m is being filled with water at a rate of $3m^3/min$. How fast is the height of the water increasing?

2. If $x^2 + y^2 + z^2 = 9$, dx/dt = 5, dy/dt = 4, find dz/dt when (x, y, z) = (2, 2, 1).



4. Water is leaking out of an inverted conical tank at a rate of $10,000 \ cm^3/min$ at the same time water is being pumped into the tank at a constant rate. The tank has height 6 m and the diameter at the top is 4 m. If the water level is rising at a rate of $20 \ cm/min$ when the height of the water is 2 m, find the rate at which water is being pumped into the tank?