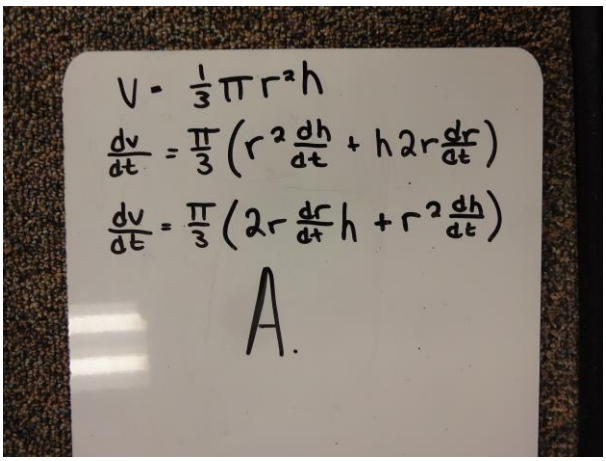
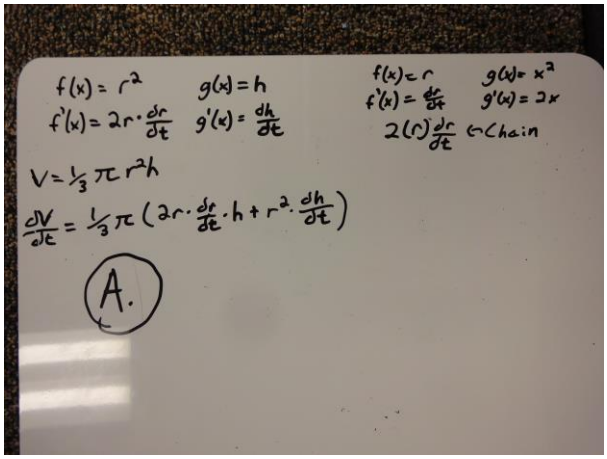
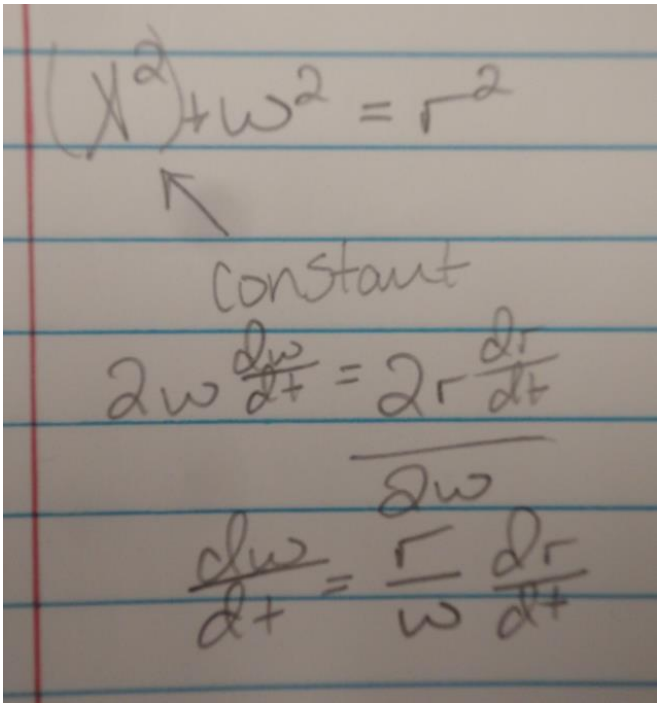
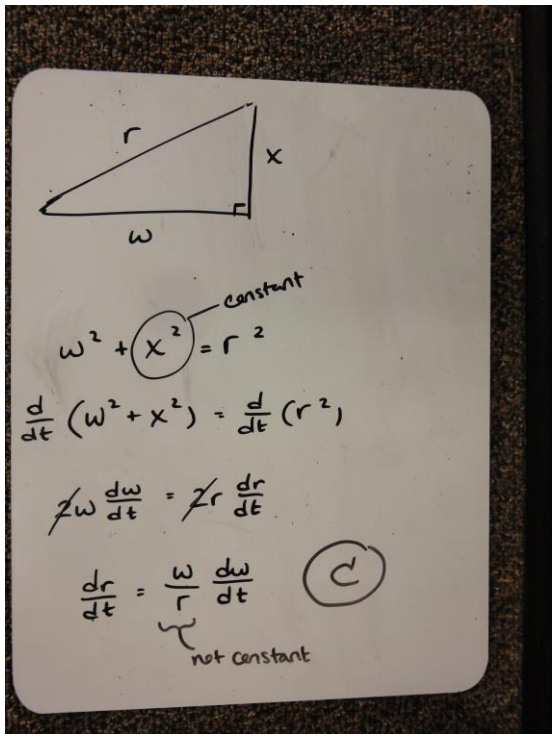
Multiple Choice Question (you need the Product Rule and the Chain Rule):





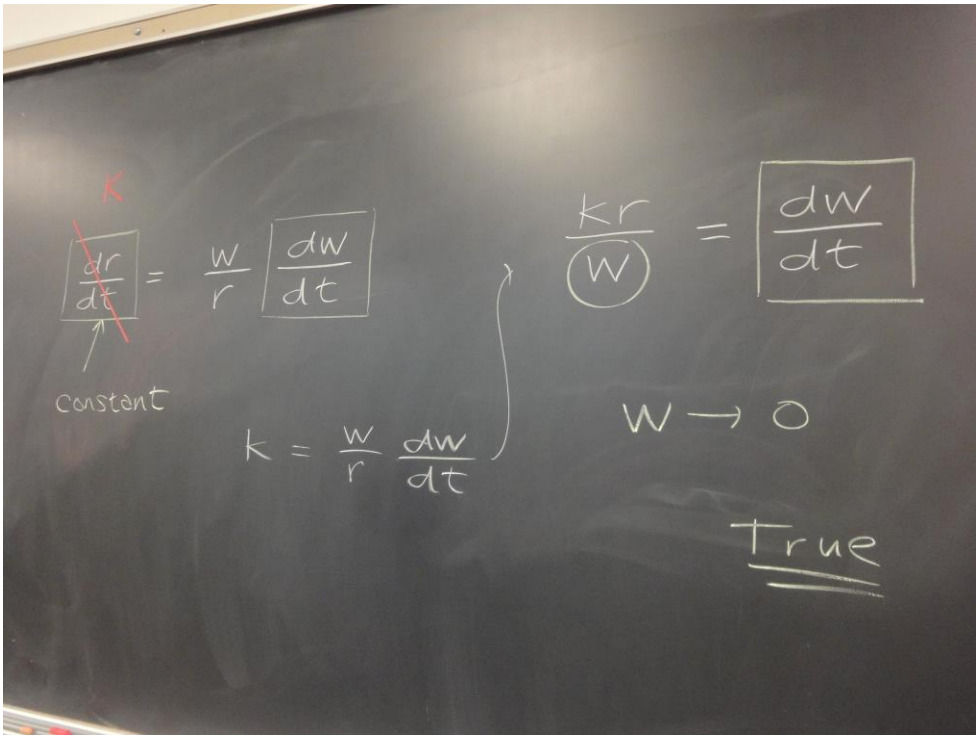
Boat Problem (Part I):





The above work is equivalent.

Boat Problem (Part II):



Note: As $w \to 0$, $\frac{dw}{dt}$ grows in magnitude. In other words, the boat moves faster as it gets closer to the dock.