Homework for Math 152H-1 October 9

Reading: Section 3.8

Homework: section 3.8 # 5, 9, 15, 16, 17, 31, 39, 49, 52, 53, 61, 62.

(1) A weight is attached to a 50' rope which runs over a pulley 20' above the ground. The other end of the rope is attached to the rear hitch on a truck and the truck drives away at a speed of 9 ft/s. The hitch is 2' above the ground. How fast is the weight rising when it is 6' above the ground?

(2) Gasoline is poured into a container at a rate of $10\pi \ ft^3/min$. The container is a right circular cone pointed down. It is $16'$ deep and $8'$ in diameter at its widest. How fast should the height of the gasoline be rising when it is $12'$ deep? You are supervising this activity and find that it is rising at a rate of $1 \ ft/min$ when it is $12'$ deep. A co-worker is about to light a cigarette, what should you do? (Depending upon how much you like this co-worker you might arrive at different answers).