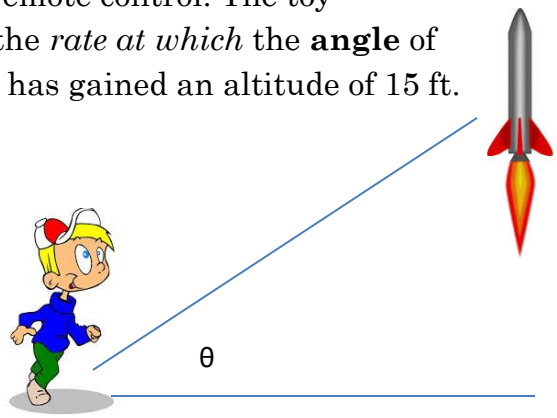
Related Rates Section II

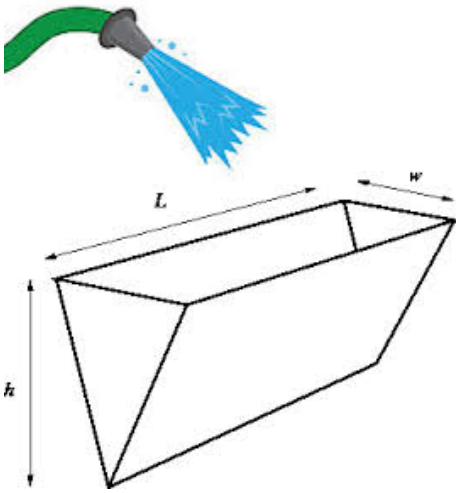
Example #1

A boy launches his toy rocket 15 feet away with his remote control. The toy rocket gains altitude at a rate of 2.5 ft per sec. Find the *rate at which* the **angle** of elevation (from the boy) is changing when the rocket has gained an altitude of 15 ft.



Example # 2

A trough is 15 m long and 4 m across. The ends are isosceles triangles with a height of 3 meters. Water runs into the trough at the rate of 2.5 m^3/min. **How fast is the water level rising** when it is 2 meters deep?



Example #3

A spotlight on the ground shines on a wall of a lion cage 15 m away. If a lion (1.3 m tall) gallops *from* the spotlight toward the building at a speed of 3.1 m/s, how fast is the length of his shadow on the building decreasing when he is 5 m from the wall in the lion cage?