

Grain pouring from a chute at the rate of 8 cubic feet per minute forms a conical pile whose altitude is always twice its radius. How fast is the altitude of the pile increasing at the instant when the pile is 6 feet high.

2

A rocket, rising vertically, is tracked by a radar station that is on the ground 5 miles from the launch pad. How fast is the rocket rising when it is 4 miles high and its distance from the radar station is increasing at a rate of 2000 miles per hour?

3

A spherical soap bubble is inflated so that its volume is increasing at the rate of 3 cubic inches per minute. How fast is the radius of the bubble increasing when the radius is 1 inch?

4

Sand pouring from a chute forms a conical pile whose height and diameter are always the same. If the height increases at a constant rate of 5 feet per minute, at what rate is sand pouring from the chute when the pile is 10 feet high?