

Related rate examples

- (1) The volume V of a sphere is increasing at a rate of 2 cubic inches per minute.
- Find the rate of change of the radius when $r=6$ inches and when $r=24$ inches.
 - Explain why the rate of change of the volume of the sphere is not constant even though dr/dt is constant.
 - Find the rate of change of the surface area when $r=6$ inches.
- (2) A conical tank (with vertex down) is 10 feet across the top and 12 feet deep. If water is flowing out of the tank at a rate of 10 cubic feet per minute, find the rate of change of the depth of the water when the water is 8 feet deep.
- (3) A ladder 25 feet long is leaning against the wall of a house. The base of the ladder is pulled away from the house at a rate of 2 feet per second.
- How fast is the top of the ladder moving down the wall when the base of the ladder is 7 feet from the wall?
 - Consider the area formed by the side of the house, the ladder, and the ground. How fast is the area of the triangle changing when the base of the ladder is 7 feet from the wall?
 - How fast is the angle between the ladder and the wall of the house changing when the base of the ladder is 7 feet from the wall?