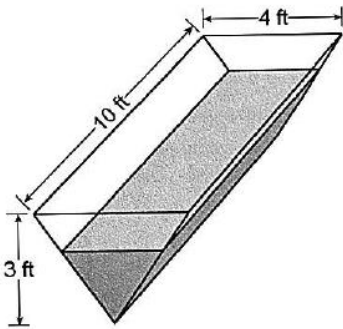




1. Wheat is falling from a chute onto a level floor at a rate of  $8\pi \text{ ft}^3/\text{min}$  to form a conical pile. If the height of the pile is always equal to the radius of its base, at what rate is the radius increasing when the pile is 8 feet deep?

2. The watering trough in the diagram below is being filled at a rate of 4 cubic feet of water per minute. How fast is the depth of the water,  $h$ , increasing when the trough is half-full by volume.



3. A conical-shaped paper cup is shown in the diagram below. If water is being poured into the cup at a rate of 1 cubic centimeter per second, how fast is the depth of the water increasing when the water is 4 centimeters deep?

