

Name _____ Hour _____

AP Calculus AB Related Rates Cones Notes

1. Sand pouring from a chute forms a conical pile whose height is always equal to the diameter. If the height increases at a constant rate of $5 \frac{ft}{min}$, at what rate is sand pouring from the chute when the pile is 10 feet high?

2. A conical water tank with vertex down has a radius 10 feet at the top and is 24 feet high. If water flows in to the tank at a rate of $20 \frac{ft^3}{min}$, how fast is the depth of the water increasing when the water is 16 feet deep?

CHALLENGE PROBLEM

3. Wheat is poured through a chute at the rate of $10 \frac{ft^3}{min}$, and falls in a conical pile whose bottom radius is always half the altitude. How fast will the circumference of the base be increasing when the pile is 8 *feet* high?