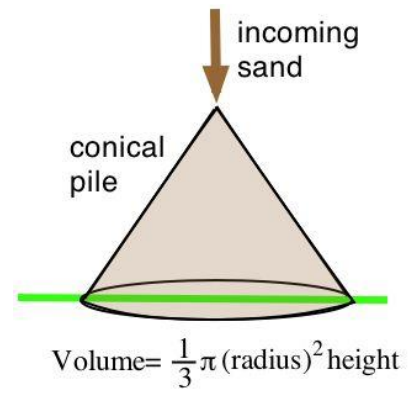


Related Rates Example Problems III

1. A boat is pulled into a dock via a rope with one end attached to the bow of a boat and the other end held by a man standing **6 ft** above the bow of the boat. If the man pulls the rope at a constant rate of **2 ft/sec**, how fast is the boat moving toward the dock when **10 ft** of rope is out?



2. Sand is falling off a conveyor belt at a rate of 12 cubic feet per minute into a conical pile. The diameter of the pile is four times the height. At what rate is the height of the pile changing when the pile is 10 feet high?



3. A search light is tracking a prisoner as he runs along the prison wall
If the man is running at rate of 4m/s and the light is located 10m from the wall, determine the speed at which the light must be turning when the man is 8m from the point on the wall that is directly opposite the search light
[Answer $10/41\text{ rads/sec}$]

