1. Oil spills from a ruptured tanker and spreads in a circular pattern whose radius increases at a constant rate of 2 ft/sec. How fast is the area of the spill increasing when the radius of the spill is 60 feet?

$$240\pi \, \frac{ft^2}{sec}$$

2. A 5-foot ladder leaning against a wall slips in such a way that its base is moving away from the wall at a rate of 2 ft/sec at the instant when the base is 4 feet from the wall. How fast is the top of the ladder moving down the wall at that instant?

$$\frac{-8ft}{3\ sec}$$

3. 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?

$$125\pi \, \frac{ft^3}{sec}$$

4. A conical water tank with vertex down has a radius $10\ feet$ at the top and is $24\ feet$ high. If water flows into 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?

$$\frac{9\ ft}{20\pi\ min}$$

5. 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?

$$\frac{5\ ft}{8\ min}$$