

Topic 15: Related Rates

1. Assume that the infected area of an injury is circular. If the radius of the infected area is 3mm and growing at a rate of 1 mm/hr, at what rate is the infected area increasing?
2. An oil tanker has an accident and oil pours out at the rate of 150 gallons per minute. Suppose that the oil spreads onto the water in a circle at a thickness of 0.1 inch. Given that 1 ft³ equals 7.5 gallons, determine the rate at which the radius of the oil spill is increasing when the radius reaches 500 feet.

Answers

- 1) 6π mm²/hr
- 2) $24/\pi$ feet per minute