

Name: _____

Student Number: _____

1. Solve the following problem.

Water is leaking out of an inverted conical tank at a rate of $11,500 \text{ cm}^3/\text{min}$ at the same time that water is being pumped into the tank at a constant rate. The tank has height 6 m and the diameter at the top is 4 m. If the water level is rising at a rate of 20 cm/min when the height of the water is 2 m, find the rate at which water is being pumped into the tank. (Round your answer to the nearest integer.)

2. Differentiate the function

a) $y = [\ln(3 + 5e^x)]^6$