Take Home on Related Rates Math 220-04 _____

Guide: Draw a simple diagram and write the relevant geometry formlula.

Consider which variables go in the basic model $dy/dt = (dy/dx)(dx/dt)$

Write the related rate equation in V, d, and t.

Fill in what you know.

Solve for the quantity sought. *Make sure your units are correct.*

1. An oil tanker in Puget Sound has sprung a leak, and a circular oil slick is forming. The oil slick is 4 inches thick everywhere. The diameter is increasing at the rate of 12 ft/hr. At the moment when the diameter is 10 ft, how fast is the oil leaking from the tanker?

2. The cost C, in dollars, of manufacturing school uniforms is $C(x) = 6x^{4/3} + 60x^{2/3} + 5000$.

The number of dresses being produced is increasing by15 dresses per month.

Find the rate at which the cost is increasing when the level of production is 1000 dresses.