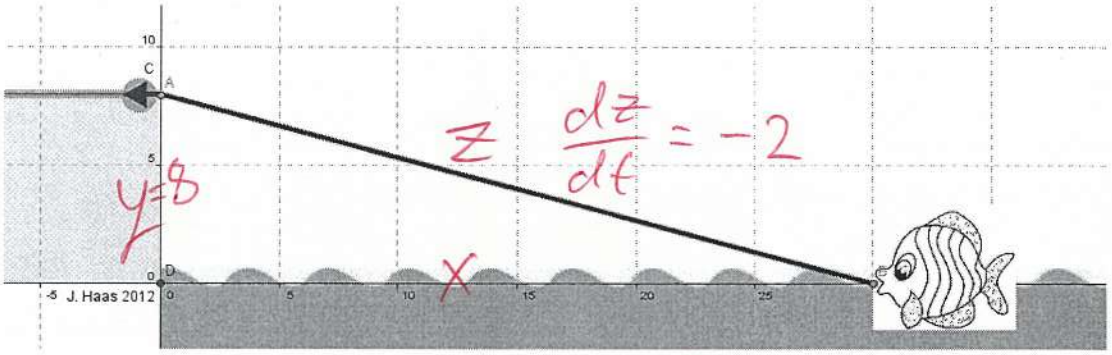
Related Rates Reeling In Fish.doc --- Calculus

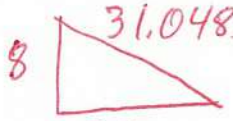
Name_____

A fish is being reeled in at 2 feet per second, from a bridge 8 feet above the water. Determine the speed that the fish moving through the water when its distance from the bridge is…



$x^2 + y^2 = z^2$

a) 30 feet

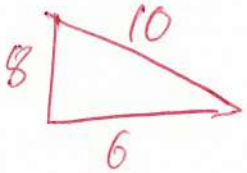


$2x\frac{dx}{dt} + 2y\frac{dy}{dt} = 2z\frac{dz}{dt}$

$2(30)\frac{dx}{dt} + 2(8)(0) = 2(31.0483)(-2)$

$$\frac{dx}{dt} = -2.07 \frac{ft}{sec}$$

b) 6 feet



$2x\frac{dx}{dt} + 2y\frac{dy}{dt} = 2z\frac{dz}{dt}$

$2(6)\frac{dx}{dt} + 2(8)(0) = 2(10)(-2)$

$$\frac{dx}{dt} = -3.3 \frac{ft}{sec}$$