Week 1 - Exercise problems

Jan. 8, 2016

Example 1.

Volume of a spherical balloon is given by $V = \frac{4}{3}\pi r^3$ where r is the radius of the sphere. Assuming that the volume of the sphere is increasing at a rate of $0.1m^3/s$, find the rate of change the balloon's radius with time when the volume of the balloon is $(\pi/6)m^3$.

Example 2.

Given that $2 + \sqrt{y} = F(G(x))$ and assuming that $F(2) = 3$, $F(3) = 2$, $F'(2) = 0$, $F'(3) = 1$, $G(3) = 2$, $G'(2) = 2$ and $G'(3) = 4$, find the slope of the tangent line to y at $x = 3$.