

4. A tree is growing and the radius of its trunk in centimeters is $r(t) = 2\sqrt{t}$ where t is measured in years. Use the differential to estimate the change in radius of the tree from 4 years to 4 years and one month.
5. A coat of paint of thickness 0.05cm is being added to a hemispherical dome of radius 25m. Estimate the volume of paint needed to accomplish this task. [Challenge: will this be an underestimate or an overestimate? Thinking geometrically or thinking algebraically will both give you the same answer.]
6. The radius of a disc is 24cm with an error of ± 0.5 cm. Estimate the error in the area of the disc as an absolute and as a relative error.