This test totals 10 points (but weighted the same in the calculation of your grade) and you get 10 minutes to do it. Good luck!

A cone is expanding with time. When the height of the cone is $\sqrt{8}$ m and the radius of the cone is 1, it is found that rate of change of the height is $\sqrt{8}$ m/s and the rate of change of radius is 1 m/s. Find the rate of change of its surface area at this instant. [Hint : The surface area of a cone is given by the formula $\pi \sqrt{r^4 + h^2r^2}$. Make sure you use the right rule of differentiation and remember both the radius and height are changing! ]