# MT 1800 Calculus I
## *Reading Activity 2*

*Name:* _____

*Purpose*: To provide an opportunity to work on your ability to independently read mathematics.

*Procedure*: Work on the following questions individually in class.

1. A manufacturing plant currently removes 85% of the smokestack pollutants of its main smokestack at a cost of $450,000. During an investigation of whether they could improve on this percentage, they discovered that it would cost an additional $270,000 to remove 90% of the smokestack pollutants of its main smokestack. Also, if they tried to get closer to removing 100% of the pollutants the cost grew without bounds and they would never be able to actually reach the 100% level. Choose all of the following descriptions that are true based only on the description above. Allow $C(p)$ to represent the cost of removing $p\%$ of the smokestack pollutants of the main smokestack.
    a. $C(90) = 270{,}000$
    b. $C(450{,}000) = 85$
    c. $C(85) = 450{,}000$
    d. $C(90) = 270{,}000 + C(85)$
    e. $\frac{\Delta C}{\Delta p} = 54{,}000$ between $p = 85$ and $p = 90$
    f. $\Delta C = 54{,}000$ between $p = 85$ and $p = 90$
    g. $\lim_{p\to\infty} C = 100$
    h. $\lim_{p\to 100} C = \infty$
    i. $\lim_{p\to 100} C = 720{,}000$
    j. $\lim_{p\to 100} C = -\infty$
    k. $\lim_{C\to 100} p = \infty$
    l. $\lim_{p\to 90} C = 720{,}000$
    m. $\lim_{p\to 90} C = 270{,}000$

2. The state game commission introduces 30 elk into a new state park. The maximum carrying capacity of the park for elk is 400. Write a limit statement that describes what will happen to the number of elk, $N$, if they stay in the park indefinitely. Let time be represented by $t$.