WS #4-3
Exponential Functions

1. You will be responsible to read the section completely and review the definitions and application of the following:

A. Laws of Exponents

1. 4.
2. 5.
3. 6.

B. Exponential Functions

1. Properties of Exponential Equations $f(x) = a^x$, $a > 1$

a.

b.

c.

d.

e.

2. Properties of Exponential Equations $f(x) = a^x$, $0 < a < 1$

a.

b.

c.

d.

e

C. Power Functions

(What is the difference between a power function and an exponential function?)

D. Number e

E. Exponential Equations

2. Explain the transformations of $f(x) = -e^{x-3}$ from $f(x) = e^x$

3. Solve:

A. $3^{x+1} = 81$

B. $e^{-x^2} = (e^x)^2 \cdot \frac{1}{e^3}$

4. Between 9:00PM and 10:00PM cars arrive at Burger King's drive-thru at the rate of 12 cars per hour (.2 car per minute). The following formula from statistics can be used to determine the probability that a car will arrive within t minutes of 9:00PM.

$$F(t) = 1 - e^{-0.2t}$$

A. Determine the probability that a car will arrive within 5 minutes of 9 PM.
B. Determine the probability that a car will arrive within 30 minutes of 9 PM
C. Graph F using your calculator.
D. What value does F approach as t becomes unbounded in the positive direction?