BLIZZARD BAG – DAY 3
Complete this Chapter 6 Review Worksheet.

Algebra 2 Pre – AP

Chapters 6 Review Worksheet

Directions: Complete the following problems on the packet. These packets will serve as a review of the entire year.

Solve each equation.

1. $\log(x+9) = 2$
2. $8 - 2e^{-x} = 4$
3. $\log(x^2+3) = \log(x+6)$
4. $7^{x+3} = e^x$
5. $\log_2(x-4) + \log_2(x+4) = 3$
6. $25^x - 12 \cdot 5^x + 32 = 0$

Suppose $f(x) = \log_3(x+2)$. Draw a sketch of the graph, and use that graph to solve the following equations and inequalities.

7. $f(x) = 3$
8. $f(x) > 0$

Write the following logarithms as the sum and/or difference of logarithms. Express powers as factors.

9. $\log(100x^2y^3)$

10. $\log_2\left(\frac{4x^3}{x^2-3x-18}\right)$

11. A 50-mg sample of radioactive substance decays exponentially to 34 mg after 30 days. How long will it take for there to be 2 mg remaining?

12. (a) If \$1000 is invested at 5% compounded monthly, how much is there after 8 months?

(b) If you want to have \$1000 in 9 months, how much do you need to place in a savings account now that pays 5% compounded quarterly?

(c) How long does it take to double your money if can invest it at 6% compounded continuously?

13. The decibel level, D, of sound is given by the equation $D = 10\log\left(\frac{I}{I_0}\right)$ where I is the intensity of sound and $I_0 = 10^{-12}$ watt per square meter.

(a) If the shout of a single person measures 80 decibels, how loud will the sound be of two people shout at the same time? That is, how loud would the sound be if the intensity doubled?

(b) The pain threshold for sound is 125 decibels. If the Athens Olympic Stadium 2004 can seat 74,400 people, how many people in the crowd need to shout at the same time for the resulting sound level to meet or exceed the pain threshold? (Ignore any possible sound dampening.)

For the following problems, use the given function f to (a) find the domain and range of f, (b) graph f, (c) find f^{-1}, (d) find the domain and range of f^{-1}, (e) graph f^{-1}.

14. $f(x) = 4^{x+1} - 2$

15. $f(x) = 1 - \log_3(x - 2)$