

## Algebra II Chapter 8 Review Sheet 2

1. Find the inverse of a)  $f(x) = 3 \ln(x) - 5$                       b)  $g(x) = -2x^2 + 4$
2. Condense: a)  $2 \log 5 - 4 \log x$                       b)  $2 \ln x + \ln 8$
3. Expand: a)  $\ln\left(\frac{2x^3}{5}\right)$                       b)  $\log(4x^6)$
4. How much will \$2000 at an annual rate of 6% be worth after 6 years if it compounded monthly?
5. If you had \$3000 that depreciated at an annual rate of 5%, when will its value be \$2000 if it was compounded quarterly?
6. Solve for x: a)  $3.2(2.5)^{x-3} = 54.6$                       b)  $\log_x 255 = 6$                       c)  $\log_2 x = 12$
7. Solve for x: a)  $3^{x-1} = 27^{4x-5}$                       b)  $\log_4(x-1) = \log_4(2x-4)$   
c)  $\log_3(3x+1) = 10$                       d)  $8 = 15^{x+3}$                       e)  $e^3 = x^4$                       f)  $e^{x+3} = 12$
8. Write an exponential function  $y = ab^x$  whose graph passes through (3, 1) and (5, 8)
9. Write the power function  $y = ax^b$  for the points in number 8.
10. If 40 grams of a substance compounded continuously at a rate of 7% per hour, how much will you have after 10 hours?
11. Suppose a substance compounded continuously at a rate of 3% per hour. If there were 50 grams after 20 hours, how much was there initially?

### Answers

- 1) a)  $y = e^{\frac{x+5}{3}}$                       b)  $y = \sqrt{\frac{x-4}{-2}}$
- 2) a)  $\log \frac{25}{x^4}$                       b)  $\ln(8x^2)$
- 3) a)  $\ln 2 + 3 \ln x - \ln 5$                       b)  $\log 4 + 6 \log x$
- 4)  $A = \$2864.09$
- 5) 8.05 years
- 6) a) 6.096                      b)  $x = 2.518$                       c)  $x = 4096$
- 7) a) 14/11                      b) 3                      c) 19682.7                      d) -2.23                      e) 2.11                      f) -515
- 8)  $y = .044(2.82)^x$
- 9)  $y = .011x^{4.07}$
- 10) 80.55
- 11) 27.44