

**Honors Precalculus**  
**Unit 4 Graded Worksheet (50pts)**

Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Block: \_\_\_\_\_

1) Find the domain of:  
(1pt each part)

a)  $f(x) = 3^{x+2} + 4$

b)  $f(x) = \log(3x - 5) - 2$

2) Find the range of:  
(1pt each part)

a)  $f(x) = -2^x + 5$

b)  $f(x) = \ln(x^2 - 4) + 6$

3) Find the asymptotes of:  
(1pt each part)

a)  $f(x) = e^{-x+1} - 7$

b)  $f(x) = -3 + \ln(x - 1)$

4) Evaluate each of the following. (Show all work – No calculator).  
(2pts each part)

a)  $\log_x \sqrt{x}$

b)  $\log 10000$

c)  $\log_{\frac{1}{5}} 25$

d)  $\log_8 32$

5) Expand the following logarithm:  $\ln\left(\frac{x^2 y}{z^3}\right)$   
(3pts)

6) Condense the following to a single logarithm:  $\log_3(x + 4) - 2\log_3(x - 1) + \log_3(x - 4)$   
(3pts)

7) Evaluate using your calculator:  $\log_{20} \frac{2}{3}$   
(1pt)

8) Solve each equation for  $x$ . (Show all of your work algebraically and round to 3 decimal places).  
(a – 3pts, b – 3pts, c – 5pts, d – 5pts, e – 3pts, f – 3pts)

a)  $e^{2x-1} = 12$

b)  $4 \ln x = 20.8$

c)  $2^{3x-1} = 3^{x+2}$

d)  $\log(x-2) + \log(x+4) = \log(3x+4)$

e)  $\log_3(x-5) - \log_3 10 = 2$

f)  $e^{2x} - 8e^x + 15 = 0$

9) Find the number of years required for a \$7,500 investment to double at a 8.4% interest rate compounded continuously.  
(3pts)

10) Determine the amount of money that should be invested at a rate of 6.5% compounded weekly, to produce a final balance of \$20,000 in 10 years.  
(2pts)