

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: $\ln\left(\frac{x^2y}{z^3}\right)$
(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)