Mr. Konichek
Hmwk 5.2

5.2 Pg. 351 (1, 2, 3, 7, 8, 11, 16, 17, 18, 21, 23, 25, 37)

1. $2^6 = 64$; $\boxed{\log_2 64 = 6}$

2. $3^5 = 243$; $\boxed{5 = \log_3 243}$

3. $4^{-2} = \frac{1}{16}$; $\boxed{-2 = \log_4 \left(\frac{1}{16}\right)}$

7. $32^{4/5} = 16$; $\boxed{\frac{4}{5} = \log_{32} 16}$

8. $81^{3/4} = 27$; $\boxed{\frac{3}{4} = \log_{81} 27}$

11. $\log 12 = \log(3)(4) = \log 3 + \log 4 = .4771 + .6021 = \boxed{1.0792}$

16. $\log \frac{1}{300} = \log 1 - \log(3)(10^2)$

$= 0 - ((\log 3) + (\log 10^2))$

$\doteq -(.4771 + 2\log_{10} 10)$

$= \boxed{-2.4771}$

17. $2\ln a + 3\ln b = \ln a^2 + \ln b^3 = \boxed{\ln(a^2 b^3)}$

18. $\frac{1}{2}\ln x + 2\ln y - 3\ln z = \ln x^{1/2} + \ln y^2 - \ln z^3$

$= \boxed{\ln\left(\frac{x^{1/2} y^2}{z^3}\right)}$

21. $\log x(x+1)^4 = \log x + \log(x+1)^4 = \boxed{\log x + 4\log(x+1)}$

23. $\log \frac{(x+1)^{1/2}}{(x^2+1)} = \boxed{\frac{1}{2}\log(x+1) - \log(x^2+1)}$

Mr. Konichek
HmwK 5.2 cont.

5.2 Pg 352 (35, 37)

35. $e^{0.4x} = 8$

$0.4x = \ln 8$

$0.4x \doteq 2.07944$

$\boxed{x \doteq 5.1986}$

37. $5e^{-2x} = 6$

$e^{-2x} = \frac{6}{5}$

$-2x = \ln(1.2)$

$-2x \doteq 0.18232155$

$x \doteq -0.09116$ OR $\boxed{x \doteq -0.0912}$