

## MATH 141 WORKSHEET 2

Show all work for full credit.

**1.** Evaluate each of the following.

a.  $\log_2 32$

b.  $\log_8 2$

c.  $\log_3 \left(\frac{1}{27}\right)$

**2.** Use the logarithm properties to rewrite the expression in terms of  $\log_b 3$  and  $\log_b 2$ .

a.  $\log_b 54$

b.  $\log_b 144$

**3.** Use the logarithm properties to evaluate the following.  
(Your final answer should be a number.)

$$\log_5 3 + 2\log_5 10 - \log_5 12$$

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4. Use the logarithm properties to expand completely.

$$\log \left( \frac{9x^5}{y(x+1)^3} \right)$$

5. Use the logarithm properties to condense to one logarithm.

$$2 \log 4 + 3 \log x - 5 \log y - \log w$$

6. Solve for  $x$ .

$$e^{5x+2} - 7 = 3$$

7. Solve for  $x$ .

$$5(4^{x+3}) - 37 = 23$$

8. Solve for  $x$ .

$$\log_4(x + 4) = 2 - \log_4(x + 10)$$

9. Solve for  $x$ .

$$\log_2(x + 8) = 3 + \log_2(x - 6)$$