

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_



## SOLVING LOGARITHM EQUATIONS WORKSHEET #2

### Properties:

1. $\log_b 1 = 0$
2. $\log_b b = 1$
3. $\log_b b^x = x$
4. $\log_b x = \log_b y$ if and only if $x = y$
5. $\log_b (uv) = \log_b u + \log_b v$
6. $\log_b \left(\frac{u}{v}\right) = \log_b u - \log_b v$
7. $\log_b u^n = n \log_b u$

### Solve & Check:

1.  $\log_2 6 + \log_2 k = \log_2 18$

2.  $\log_b 12k - \log_b 4 = \log_b 15$

3.  $\log_b 2t + \log_b 3t = \log_b 24$

4.  $\log_5 t + \log_5 (t - 4) = \log_5 12$

5.  $\log_3 y^2 + \log_3 y^3 = \log_3 16y$

6.  $\log_b (c^2 - 4c) - \log_b c = \log_b 2$

7.  $\log_5 3 + \log_5 t + \log_5 (t + 4) = \log_5 63$

8.  $2 \log_3 y = \log_3 4 + \log_3 (y + 8)$

**9.**  $2\log_b t - \log_b 2 = \log_b (2t + 6)$

**10.**  $\frac{1}{2}\log_b a + \frac{1}{2}\log_b (a + 5) = \log_b 6$

**11.**  $\frac{1}{3}\log_5 y + \frac{1}{3}\log_5 (y + 2) = \log_5 2$

**12.**  $2\log_b (2y + 2) = \log_b 16 + 2\log_b (y - 2)$

**13.**  $2\log_5 (3a + 1) = \log_5 4 + 2\log_5 (2a - 1)$

**14.**  $\frac{1}{2}\log_3 (c + 1) + \frac{1}{2}\log_3 (c - 4) = \log_3 6$

**15.**  $\frac{1}{2}\log_b (y - 1) - \frac{1}{2}\log_b (2y - 1) = \log_2 2 - \log_b 3$

**16.**  $\log_5 12 - \frac{1}{2}\log_5 3 = \frac{1}{2}\log_5 2y$

**17.**  $2\log_3 (y + 5) - \log_3 (y + 2) = \log_3 (y + 10)$