

## Standard #11 Model Assessment Items

### Computational and Procedural Skills

1. Rewrite the logarithmic equation into exponential form:  $\log_2 8 = 3$ .
2. Rewrite the exponential equation into logarithmic form:  $3^2 = 9$ .
3. Utilize the properties of exponentials and logarithms to evaluate each of the following:
  - A.  $\log_7 1$
  - B.  $\log_5 5^3$
  - C.  $4^{\log_4 3}$
4. Use the properties of logarithms to write each expression as a single logarithm:
  - A.  $\log 12 + \log 3$
  - B.  $\log 15 - \log 3$
  - C.  $2\log_3 5 + \log_3 2$
  - D.  $3\log_5 x + 4\log_5 x - 2\log_5 (x+6)$
5. Use the properties of logarithms to match expressions on the left with equivalent expressions on the right.

$$\log(3x)$$

$$\log\left(\frac{3}{x}\right)$$

$$\log x^3$$

$$\log\left(\frac{x}{3}\right)$$

$$\log 3 + \log x$$

$$3 \log x$$

$$(\log x)(\log 3)$$

$$\log 3 - \log x$$

$$\log x - \log 3$$

Expand or condense each example.

$$\log_7 \frac{a^6}{b^5}$$

$$15\log_8 x - 3\log_8 y$$

$$\log_2 (uv^5)^4$$

$$\log_7 x + \log_7 y + 2\log_7 z$$