NAME:_____

Write as a single logarithm:

1. $2 \log_b x + 2 \log_b y$

[A] $\log_b\left(\frac{x^2}{y^2}\right)$ [B] $\log_b(4xy)$

[C] $\log_b(x^2y^2)$ [D] $\log_b\left(\frac{2x}{2y}\right)$

2. $9 \log_b x + 3 \log_b y$

[A] $\log_b(x^9y^3)$ [B] $\log_b\left(\frac{9x}{3y}\right)$

[C] $\log_b(27xy)$ [D] $\log_b\left(\frac{x^9}{y^3}\right)$

3. $3 \log_b x - 9 \log_b y$

[A] $\log_b(27xy)$ [B] $\log_b\left(\frac{x^3}{y^9}\right)$

[C] $\log_b(x^3y^9)$ [D] $\log_b\left(\frac{3x}{9y}\right)$

4. $7 \log_b x + 8 \log_b y$

[A] $\log_b\left(\frac{7x}{8y}\right)$ [B] $\log_b(x^7y^8)$

[C] $\log_b(56xy)$ [D] $\log_b\left(\frac{x^7}{y^8}\right)$

5. $3 \log_b x + 9 \log_b y$

[A] $\log_b(27xy)$ [B] $\log_b\left(\frac{3x}{9y}\right)$

[C] $\log_b\left(\frac{x^3}{y^9}\right)$ [D] $\log_b(x^3y^9)$

6. $6 \log_b x - 7 \log_b y$

[A] $\log_b\left(\frac{6x}{7y}\right)$ [B] $\log_b(x^6y^7)$

[C] $\log_b\left(\frac{x^6}{y^7}\right)$ [D] $\log_b(42xy)$

7. $8 \log_b x - 5 \log_b y$

[A] $\log_b(x^8y^5)$ [B] $\log_b\left(\frac{x^8}{y^5}\right)$

[C] $\log_b\left(\frac{8x}{5y}\right)$ [D] $\log_b(40xy)$

8. $7 \log_b x - 7 \log_b y$

[A] $\log_b\left(\frac{x^7}{y^7}\right)$ [B] $\log_b(x^7y^7)$

[C] $\log_b(49xy)$ [D] $\log_b\left(\frac{7x}{7y}\right)$

9. Which shows the expansion of $\log 6x^3$?

[A] $\log 6 + 3\log x$ [B] $18\log x$

[C] $3\log 6 + \log x$ [D] $\log 6 + x\log 3$

10. Compare the quantity in Column A with the quantity in Column B.

Column A	Column B
$\log 4x^6$	$\log 4 + 6\log y$

[A] The quantity in Column A is greater.

[B] The quantity in Column B is greater.

[C] The two quantities are equal.

[D] The relationship cannot be determined on the basis of the information supplied.

[1] C

[2] A

[3] B

[4] B

[5] D

[6] C

[7] B

[8] A

[9] A

[10] D