

NAME: _____

P.I. A2.A.19: Apply the properties of logarithms to rewrite logarithmic expressions in equivalent forms

1. Write the equation $\log_{243} 9 = \frac{2}{5}$ in exponential form.

[A] $243^{\frac{2}{5}} = 9$ [B] $9^{\frac{2}{5}} = 243$

[C] $\left(\frac{2}{5}\right)^{243} = 9$ [D] $9^{\frac{5}{2}} = 243$

2. Write the equation $\log_{243} 81 = \frac{4}{5}$ in exponential form.

[A] $81^{\frac{5}{4}} = 243$ [B] $\left(\frac{4}{5}\right)^{243} = 81$

[C] $243^{\frac{4}{5}} = 81$ [D] $81^{\frac{4}{5}} = 243$

3. Write the equation $\log_{16} 64 = \frac{3}{2}$ in exponential form.

4. Write the equation $\log_{1024} 256 = \frac{4}{5}$ in exponential form.

5. Write the equation $5^2 = 25$ in logarithmic form.

[A] $\log_2 25 = 5$ [B] $\log_{25} 5 = 2$

[C] $\log_5 25 = 2$ [D] $\log_{\frac{1}{2}} 25 = 5$

6. Write the equation $3^5 = 243$ in logarithmic form.

[A] $\log_{243} 3 = 5$ [B] $\log_5 243 = 3$

[C] $\log_3 243 = 5$ [D] $\log_{\frac{1}{5}} 243 = 3$

7. Write the equation $243^{\frac{2}{5}} = 9$ in logarithmic form.

[A] $\log_9 243 = \frac{5}{2}$ [B] $5\log_2 9 = 243$

[C] $\log_{\frac{2}{5}} 9 = 243$ [D] $\log_{243} 9 = \frac{2}{5}$

8. Write the equation $9^{\frac{3}{2}} = 27$ in logarithmic form.

[A] $\log_{27} 9 = \frac{2}{3}$ [B] $\log_9 27 = \frac{3}{2}$

[C] $2\log_3 27 = 9$ [D] $\log_{\frac{3}{2}} 27 = 9$

9. Write the equation $6^3 = 216$ in logarithmic form.

10. Write the equation $2^5 = 32$ in logarithmic form.

[1] A

[2] C

[3] $16^{\frac{3}{2}} = 64$

[4] $1024^{\frac{4}{5}} = 256$

[5] C

[6] C

[7] D

[8] B

[9] $\log_6 216 = 3$

[10] $\log_2 32 = 5$