

Name _____

Date _____

1. $3^{2x-5} = 3^{x+3}$

2. $5 \cdot 3^x = 405$

3. $4^x - 8 = 56$

4. $5^{x-4} + 8 = 133$

5. $4(2)^{2x} + 2 = 34$

6. $2^{3x} = \frac{1}{8}$

7. $3^{2x} = \left(\frac{1}{9}\right)^3$

8. $\left(\frac{1}{125}\right)^{4x} = 5^3$

9. $4^{4x+3} = 16^{x-3}$

10. $3^{2x+3} = \left(\frac{1}{81}\right)^{x-1}$



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11. $\log_3(x) = 4$	12. $\log_5(x-3) = 2$
13. $\log_4(2x) = 3$	14. $2\log_2(x-3) = 10$
15. $\log_3(x+2) = \log_3 12$	16. $\log_7(3x) = \log_7(x+20)$
17. $\log_3(x^2) = \log_3(2x+3)$	18. $\log_2(x^2+2x) = \log_2 15$



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Write each exponential equation in logarithmic form:

1) $2.4^0 = 1$

2) $4^{1.5} = 8$

3) $10^{-2} = 0.01$

4) $3^x = 243$

5) $x^{2.5} = 32$

6) $6^x = 216$

7) $1.2^0 = 1$

8) $4^{-1} = 0.25$

Write each logarithmic equation in exponential form:

9) $\log_4 0.0625 = -2$

10) $\log_x -16 = 3$

11) $\log_{0.9} 0.81 = 2$

12) $\log_6 x = 3$

13) $\log_5 625 = 4$

14) $\log_2 x = 6$

15) $\log_{4.5} 1 = 0$

16) $\log_\pi \pi = 1$

Evaluate by using mental math:

17) $\log_7 343$

18) $\log_3 \left(\frac{1}{9} \right)$

19) $\log_{0.5} 0.25$

20) $\log_{1.2} 1.44$

21) $\log_2 1$

22) $\log 0.001$

23) $\log_4 64$

24) $\log_{0.1} 100$

