

Name: \_\_\_\_\_

This side: Tuesday, November 2  
2<sup>nd</sup> - 3<sup>rd</sup> - ALL  
4<sup>th</sup> - 5<sup>th</sup> - evens

Solve each exponential equation using properties of logarithms.

11.  $7^{x-2} = 28$

$$7^x = 28$$

$$(x - 2) \log 7 = \log 28$$

$$x - 2 = \frac{\log 28}{\log 7}$$

$$x - 2 \approx 1.712$$

$$x \approx 3.712$$

12.  $15^{x+2} = 60$

13.  $5^{4x} = 32$

14.  $9^{3x} = 124$

15.  $3^{x+7} - 5 = 63$

16.  $14^{x-5} + 3 = 73$

17.  $6\left(\frac{4}{7}\right)^{2x} = 348$

18.  $8\left(\frac{5}{8}\right)^{4x} = 448$



19.  $3(4)^{3x-6} + 2 = 35$

20.  $-7(3)^{x+6} - 8 = -162$

ning

Do these →

#s 6, 8, 10, 17, 28, 38, 40

Practice Problems

This side: block November 3 or 4  
even odd

2<sup>nd</sup> - 3<sup>rd</sup> - ALL

4<sup>th</sup> - 5<sup>th</sup> - pick 5 from the box

Do these on a separate sheet!

Solve the following equations:

Remember that the arguments of all logarithms must be greater than 0. Also exponentials in the form of  $a^x$  will be greater than 0. Be sure to check all your answers in the original equation.

1.  $3^{x-1} = 81$

22.  $3^{x-2} = 81$

2.  $8^x = 4$

23.  $\log_3 x = 5$

3.  $e^x = 5$

24.  $\log_4 x = 3$

4.  $-14 + 3e^x = 11$

25.  $\log_2 2x = \log_2 100$

5.  $-6 + \ln 3x = 0$

26.  $\ln(x + 4) = \ln 7$

\* 6.  $\log(3x + 1) = 2$

27.  $\log_3(2x + 1) = 2$

7.  $\ln x - \ln 3 = 4$

\* 28.  $\log_5(x - 10) = 2$

\* 8.  $2 \ln 3x = 4$

29.  $3^x = 500$

9.  $5^{x+2} = 4$

30.  $8^x = 1000$

\* 10.  $\ln(x + 2)^2 = 6$

31.  $\ln x = 7.25$

11.  $4^{-3x} = 0.25$

32.  $\ln x = -0.5$

12.  $2e^{2x} - 5e^x - 3 = 0$

33.  $2e^{0.5x} = 45$

13.  $\log_7 3 + \log_7 x = \log_7 32$

34.  $100e^{-0.6x} = 20$

14.  $2 \log_6 4x = 0$

35.  $12(1 - 4^x) = 18$

15.  $\log_2 x + \log_2(x - 3) = 2$

36.  $25(1 - e^t) = 12$

16.  $\log_2(x + 5) - \log_2(x - 2) = 3$

37.  $\log 2x = 1.5$

\* 17.  $4 \ln(2x + 3) = 11$

\* 38.  $\log_2 2x = -0.65$

18.  $\log x - \log 6 = 2 \log 4$

39.  $\frac{1}{3} \log_2 x + 5 = 7$

19.  $2^x = 64$

\* 40.  $4 \log_5(x + 1) = 4.8$

20.  $5^x = 25$

41.  $\log_2 x + \log_2 3 = 3$

21.  $4^{x-3} = \frac{1}{16}$

42.  $2 \log_4 x - \log_4(x - 1) = 1$