

WARM UP

State the domain and range in interval notation.

1) $y = \log_4(x+3)$
 $D: (-3, \infty) \quad R: (-\infty, \infty)$
 $x = -3$

2) $y = 3\left(\frac{1}{2}\right)^x - 5$
 $D: (-\infty, \infty) \quad R: (-5, \infty)$
 $A: y = -5$

Solve the following.

3) $4^{x+1} - 8 = -6$
 $4^{x+1} = 2$
 $2^{2(x+1)} = 2^1$
 $2^{2x+2} = 2^1$
 $2x+2=1 \quad x=-\frac{1}{2}$

4) $27^x = 81$
 $3^{3x} = 3^4$
 $3x=4$
 $x=\frac{4}{3}$

5) $\frac{1}{2} \log_2 64 - \log_2 8$
 $\frac{1}{2} \log_2 64 = x$ (2)
 $\log_2 8 = x$
 $2^x = 8 \quad 2^x = 2^3$
 $x=3$

$8(12^x) + 2 = 73$
 $\frac{8(12^x) + 2}{-2 \quad -2}$

$\frac{8(12^x) = 71}{8}$

$12^x = \frac{71}{8}$

$\log_{12} \frac{71}{8} = x$

$-9(2^{x+3}) + 7 = -19$
 $\frac{-9(2^{x+3}) + 7 = -19}{-7 \quad -7}$

$\frac{-9(2^{x+3}) = -26}{-9}$

$2^{x+3} = \frac{26}{9}$

$\log_2 \frac{26}{9} = x+3$


Mar 14-2:46 PM





8.5 Pt. 2 Solving Log Equations




Feb 22-12:03 PM

Solve $4 \log_7(x+3) - 4 = 8$

- Isolate the logarithm 

$$\begin{aligned} 4 \log_7(x+3) - 4 &= 8 \\ +4 & \quad +4 \\ \hline 4 \log_7(x+3) &= 12 \\ \frac{4 \log_7(x+3)}{4} &= \frac{12}{4} \end{aligned}$$
- Change to exponential form. 


$$\begin{aligned} \log_7(x+3) &= 3 \\ 7^3 &= x+3 \end{aligned}$$
- Use a calculator. 


$$\begin{aligned} 343 &= x+3 \\ -3 & \quad -3 \\ \hline x &= 340 \end{aligned}$$
- Solve for x. 
- Ck answer with calculator.  

Layer reveal

8.5 Exponents and Log Equations

Solve each log equation for x.
(Hint! What is the base? Rewrite as exponential.)

$\log(2x+5) = 2$  47.5
 $10^2 = 2x+5$
 $100 = 2x+5$
 $95 = 2x$
 $47.5 = x$

$\log_3(5x-4) - 6 = -8$  .82
 or $\frac{37}{45}$
 $\log_3(5x-4) = -2$
 $3^{-2} = 5x-4$
 $\frac{1}{3^2} = 5x-4$
 $\frac{1}{9} = 5x-4$
 $\frac{1}{5} \left(\frac{37}{9} \right) = (5x) \frac{1}{5}$
 $\frac{37}{45} = x$

Mar 19-7:45 AM

How do you solve these problems?

$$\log(3x - 2) = 2$$

$$10^2 = 3x - 2$$

$$100 + 2 = 3x$$

$$\frac{102}{3} = x = 34$$



34

$$\frac{2 \log_6(4x)}{2} = \frac{0}{2}$$

$$\log_6(4x) = 0$$

$$6^0 = 4x$$

$$1 = 4x$$

$$\frac{1}{4} = x$$



.25

Mar 7-2:29 PM



GO COUGARS!

HOMEWORK 8.5

Pg. 465 #54-60 EVEN (NO CALC), 85-96
(skip 92)

pg. 468 ckpt #1-9

Feb 14-3:16 PM