Name:_____ Date:_____

Notes: Solving Logarithmic Equations

Do Now: Find the solution to each equation.

1) $\log_5(2x-7)=3$

2) $\log 8+\log x=2$

What Should I Be Able to Do?

- I can solve common base logarithmic equations that require me to condense logarithms.

Solve:

1) $\log_3(x)-\log_3(5)=4$

2) $\ln x+\ln 10=7$

Solve:

$$\log_4(x) + \log_4(x - 12) = 3$$

Checkpoint:

Solve the following equation.

$$\log x + \log(x + 15) = 2$$

Do Now: Find the solution to each equation.

1) $\frac{x}{4} = \frac{7}{4}$

2) $\frac{x}{9} + \frac{x-2}{3} = \frac{8}{9}$

3) $\log x = \log 72$

4) $\log_8 10 = \log_8 x$

5) $\ln 2x = \ln 98$

6) $\log 15 + \log x = \log 360$

Solve:

1) $\log_6(12) - \log_6(x-1) = \log_6(7)$

2) $2\ln x + \ln 4 = \ln 9$

3) $\log(x-5) = \log(9x+4) - \log(x+4)$

Checkpoint:

Solve the following equation.

$$\log_2 x + \log_2(x-5) = \log_2(x+17)$$

Success Criteria

- I can solve logarithmic equations that require me to condense logarithms.

1) $\log x - \log(x - 3) = 1$

Explain why you did each step to solve the equation.

2) $\ln x + \ln(x - 20) = \ln(7x - 72)$

Explain why you did each step to solve the equation.

/Name:_____ Date:_____

Classwork: Solving Logarithmic Equations

Solve each of the following logarithmic equations.

1) $\log 2 + \log x = \log 14$

2) $\log_{13} x + \log_{13}(x - 9) = \log_{13} 22$

3) $\log x - \log 72 = \log \frac{1}{2}$

4) $\ln 6 - \ln x = 4$

5) $7 + \log x = 5$

6) $\log_8 \sqrt[3]{x - 1} = 2$

7) $2 \log_4(x - 1) = \log_4 16 + 7$

8) $\ln(2x) + \ln(2x + 6) = \ln 16$

9) $3\log x = \log 729$

10) $\log_3 x + \log_3(x+8) = 2$

11) $\log(3x) - \log(x+3) = \log(x-1)$