Warm up:

Think of any questions you might have from what we have studied so far. We have covered exponentials, inverses, logarithms and properties of logarithms.

7-1: Exponential Functions

Write a function that models exponential growth and one that models exponential decay. What makes the function exponential growth or decay?

$10(1.1)^x$

$\left(\frac{3}{5}\right)^x$

Do you remember the exponential growth/decay formula?

$F = i((1 \pm i)^t$

7-2: Inverses

An inverse is just a reflection of what line?

$y = x$

Since this is the case how do we find the inverse of points or of a function?

Switch x and y

Write your own function, then find the inverse of that function.

Remember, if we ever find the inverse of a real world function, such as Celsius to Fahrenheit just solve for the other variable, don't switch them.

7-3: Logarithms

A log is an exponent! It is just the inverse of the exponent!

Write the following in exponential notation:

$\log_7 x = 4$ $7^4 = x$

$13 = \log_5 x$ $5^{13} = x$

Write the following in logarithmic notation:

$7^x = 17$ $\log_7 17 = x$

$x = 4^7$ $\log_4 x = 7$

If a base is not written and we just see, for example, log 9...what base are we using?

7-4: Properties of logarithms

If we add logs, such as log 9 + log 10, what do we do with the logarithms?

$\log 90 = x$

If we subtract logs, such as log 20 - log 5, what do we do with the logarithms?

$\log 4 = x$

If we have a logarithm raised to a power, like $\log 9^4$, how do we rewrite this?

$4 \cdot \log 9$

Remember, for any of these properties to work, we need to have the same base!

$\log_7 3 + \log_5 2$

You may be asked, hint, to evaluate a log such as $\log_{18} 90$.

The problem is that it isn't base 10 so our calculator is useless. What can we do to get this to a base 10 number?

$$\frac{\log 90}{\log 18}$$

Is there anything you want extra practice on before the quiz?

$\log 1000^3$

$3 \cdot \log 1000$

$3 \cdot 3 = 9$

$\log_{10} 1000 = x$

$10^x = 1000$

$= 3$