What is the relationship between the three numbers in each equation?

a) $\log_3 9 = 2$

b) $\log_2 32 = 5$

c) $\log_2 16 = 4$

d) Define "inverse operation" and give a few examples

Nov 11-7:56 AM

5-1 Defining and Evaluating Logarithms

5-1a: I can evaluate a logarithmic expression

How could we solve each of the following equations algebraically for x?

$x^2 = 9$ $3^x = 9$

What's the difference?

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Problems like $3^x = 9$

are why we have logarithms!

Solving using logarithms

$$3^x = 9$$

What happened to the exponent?

What does the following equation mean?

$$\log_3 9 = x$$

What about this one?

$$5^x = 50$$

How would you go about solving these?

$$3^x = 90$$

$$y^x = z$$

What does a logarithm do? In what situations do we use a logarithm?

What does the following equation mean?

$$\log_4 16 = x$$

$$\log_4 \frac{1}{16} = x$$

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$$\log_3 \sqrt{3} = x$$

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$$\log_{\frac{1}{2}} 4 = x$$

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In your own words, what is a "logarithm"?

*Number line activity

If $\log 100 = 2$ what is the base of the logarithm?

If $\ln e^4 = 4$ what is the base of the logarithm?

In your own words, what is a "logarithm"?

Is it possible for a logarithm to equal a negative number?

Is it possible for a logarithm to equal zero?

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Does $\log_x 0$ have an answer?

Why or why not?

Does $\log_x x^5$ have an answer?

Why or why not?

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