

1.23.17
Common Logarithm Function
Springboard 22.2

Warm-up
Solve for x

1) $10^3 = x$

2) $10^1 = x$

3) $10^2 = x$

4) $10^0 = x$

5) $10^x = 100,000$

6) $10^x = \frac{1}{100}$

A **logarithm** is an exponent to which a base is raised that results in a specific value.

A **Common Logarithm** is a base 10 logarithm, such as $\log 100 = 2$ because $10^2 = 100$.

Logarithmic statement $\log a = b$

Exponential Statement $10^b = a$

I do:

Solve and rewrite as an exponential statement.

$$\log 10000 = x$$

Solve for x	
Rewrite as an exponential statement	

We do:

Solve and rewrite as an exponential statement.

$$\log 1000000 = x$$

Solve for x	
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Rewrite as an exponential statement	
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You do with your partner on whiteboards:
Right Talk, Left write
Solve and rewrite as an exponential statement.

$$\log 10 = x$$

Solve for x	
Rewrite as an exponential statement	

Solve and rewrite as an exponential statement.

$$\log 1000 = x$$

Solve for x	
Rewrite as an exponential statement	

Solve and rewrite as an exponential statement.

$$\log\left(\frac{1}{1000}\right) = x$$

Solve for x	
Rewrite as an exponential statement	

Going backwards!

I do:

Solve and rewrite as a logarithmic statement.

$$10000 = 10^x$$

Solve for x	
Rewrite as a logarithmic statement	

We do:

Solve and rewrite as an logarithmic statement.

$$\frac{1}{1,000,000} = 10^x$$

Solve for x	
Rewrite as a logarithmic statement	

You do with your partner on whiteboards:
Left Talk, Right write
Solve and rewrite as an logarithmic statement.

$$10 = 10^x$$

Solve for x	
Rewrite as a logarithmic statement	

$$1000 = 10^x$$

Solve for x	
Rewrite as a logarithmic statement	

Evaluate

$$\log 100 =$$

$$\log 100000 =$$

$$\log \frac{1}{10} =$$

$$\log \frac{1}{10000} =$$

Tear out pages 343-356

Exit slip

1) Solve and rewrite as a logarithmic statement.

$$1,000,000 = 10^x$$

2) Solve and rewrite as an exponential statement.

$$\log 10,000 = x$$