

## 7.3 Notes Day 2 – Graphing Logarithmic Functions

**Warm-Up** Remember:  $b^x = a \leftrightarrow \log_b(a) = x$

a. Rewrite each exponential equation in logarithmic form:

$$3^4 = 81 \rightarrow \underline{\hspace{2cm}} \qquad \left(\frac{1}{5}\right)^3 = \frac{1}{125} \rightarrow \underline{\hspace{2cm}}$$

b. Rewrite each logarithmic equation in exponential form:

$$\log_4(256) = 4 \rightarrow \underline{\hspace{2cm}} \qquad \log_6\left(\frac{1}{216}\right) = -3 \rightarrow \underline{\hspace{2cm}}$$

c. Evaluate each expression. (Remember: log means “what exponent goes on...”)

$$\log_4\left(\frac{1}{64}\right) = \underline{\hspace{1cm}} \qquad \log_8(512) = \underline{\hspace{1cm}} \qquad \log_4(1) = \underline{\hspace{1cm}}$$

$$\log_8(8) = \underline{\hspace{1cm}} \qquad \log_{32}(2) = \underline{\hspace{1cm}} \qquad \log_{\frac{1}{2}}(64) = \underline{\hspace{1cm}}$$

**Common logarithm** – When no base is indicated, the base is \_\_\_\_\_.

Evaluate:  $\log 1000 = \underline{\hspace{1cm}}$        $\log 0.01 = \underline{\hspace{1cm}}$        $\log 1 = \underline{\hspace{1cm}}$

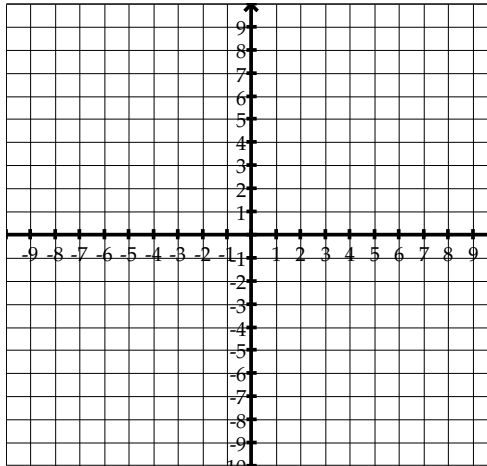


2. Graph:  $f(x) = \log_5(x + 3)$

Parent:

Transformations:

x	y



Asymptote:

Domain:

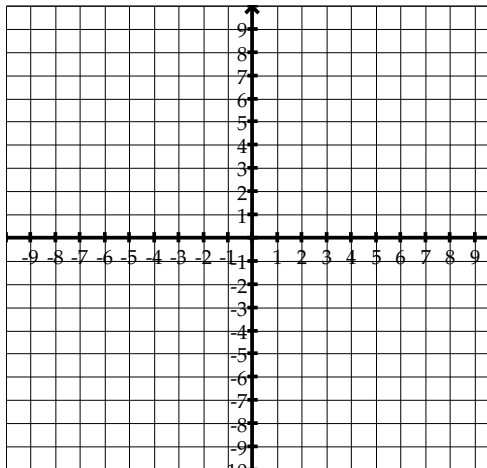
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3. Graph:  $f(x) = -\log(x - 2)$

Parent:

Transformations:

x	y



Asymptote:

Domain:

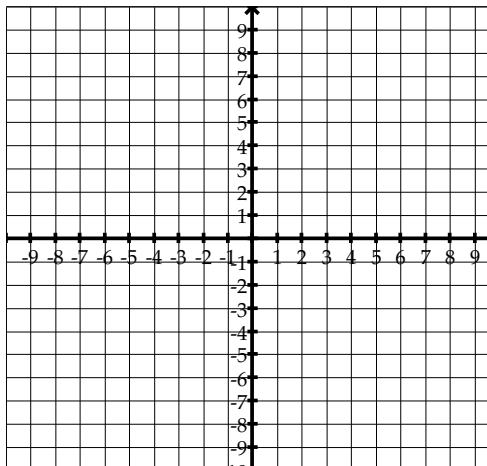
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4. Graph:  $f(x) = 3 \log_{\frac{1}{2}}(x) + 1$

Parent:

Transformations:

x	y



Asymptote:

Domain:

Range: