

**Logs and Exponentials Test Review WS #4**

Graph each function and find the following characteristics.

1)  $f(x) = \log_3(x + 4) - 1$

Parent function:

Transformations:

Domain:

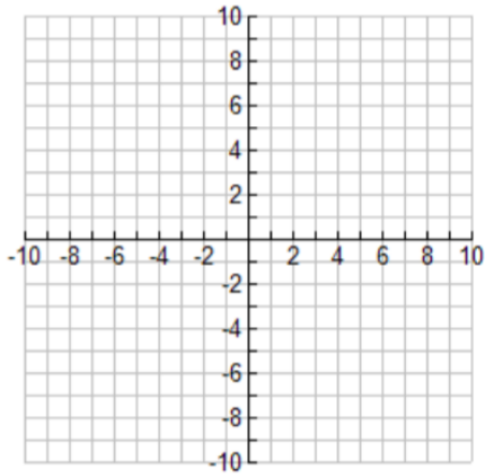
Range:

Asymptote:

Intercepts:

$\lim_{x \rightarrow \infty} f(x) =$

$\lim_{x \rightarrow 2^+} f(x) =$



2)  $g(x) = -3\log_2(x - 2)$

Parent function:

Transformations:

Domain:

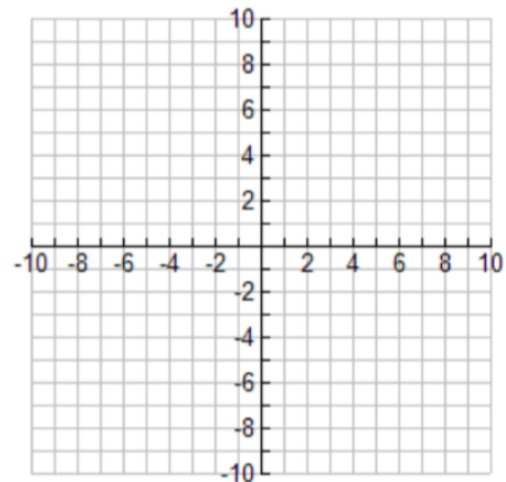
Range:

Asymptote:

Intercepts:

$\lim_{x \rightarrow \infty} f(x) =$

$\lim_{x \rightarrow 2^+} f(x) =$



Rewrite each equation in logarithmic form.

3)  $3^4 = 81$

4)  $4^{-3} = \frac{1}{64}$

Rewrite each equation in exponential form.

5)  $\log_5 125 = 3$

6)  $\ln 10 \approx 2.303$

Evaluate.

7)  $\log_3 81$

8)  $\log_4 \frac{1}{64}$

9)  $\ln e^5$

10)  $\log 100,000$

11)  $\log_{16} 8$

12)  $\log_9 \frac{1}{27}$

13)  $5^{\log_5 2}$

14)  $\log_6 6^{17}$

15)  $\log_8 16$

16)  $\log_{\frac{1}{27}} 9$

17)  $\log 0.0001$

18)  $\log_{49} 7$

**Expand fully.**

$$19) \ln \frac{\sqrt{e}}{y^2}$$

$$20) \log(200a^2b^3)^4$$

$$21) \log_2 \frac{48m}{25n}$$

**Condense into a single logarithmic expression.**

$$22) \log_3 x - 3$$

$$23) \ln b + 3 \ln c - 2 \ln a$$

$$24) \frac{1}{2} - 2(3 \log m + 4 \log n)$$

**Solve each equation.**

$$25) \log x = 4$$

$$26) \log_x 3 = \frac{1}{2}$$

$$27) 4^x = 3$$

$$28) \ln x = 1.8$$

$$29) \left(\frac{1}{2}\right)^x = 32^{x-1}$$

$$30) 4(2^{3x-1}) - 3 = 0$$

$$31) 9 = 4 + \log_2(x + 5)$$

$$32) \log x + \log(x - 2) = \log 8$$

$$33) 7^{x-1} \cdot 7^{x+3} = 14$$

$$34) \log_2(x + 1) - \log_2(x - 5) = 3$$

$$35) 6^{2x} = 30$$

$$36) \log_3(16x + 1) = 4$$

$$37) \log_7(3x^2 + 8) - \log_7 8 = 4$$

$$38) \frac{5^{6x+7}}{5^{3x+5}} = 6$$