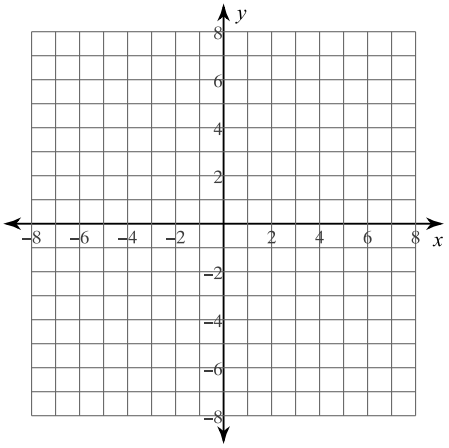
PreAP Algebra 2 Name_____

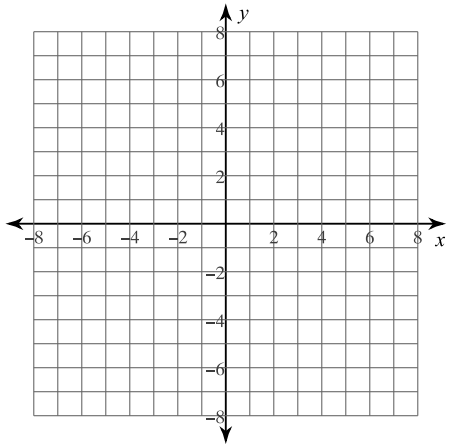
T13 Review (Logs)

Identify the domain and range of each. Then sketch the graph.

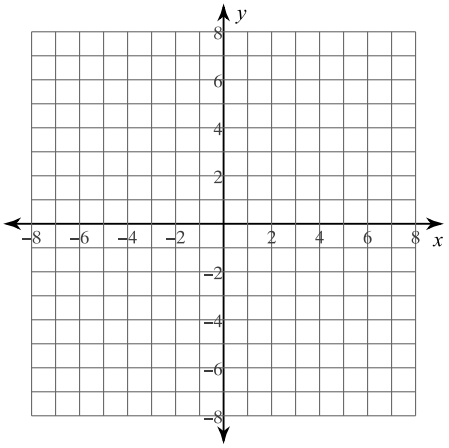
1) $y = \log_6 (x - 1) + 2$



2) $y = \log_5 (x + 3) - 2$



3) $y = \ln (x - 1) - 3$



Evaluate each expression.

4) $\log_{125} 5$

5) $\log_4 1$

6) $\log_{16} 4$

7) $\log_2 16$

8) $\log_3 81$

Rewrite each equation in exponential form.

9) $\log_{15} 225 = 2$

10) $\log_{\frac{1}{14}} \frac{1}{196} = 2$

Rewrite each equation in logarithmic form.

11) $8^2 = 64$

12) $3^{-5} = \frac{1}{243}$

Use the properties of logarithms and the values below to find the logarithm indicated. Do not use a calculator to evaluate the logs.

13) $\log_6 9 \approx 1.2$
$\log_6 10 \approx 1.3$
$\log_6 4 \approx 0.8$
Find $\log_6 \frac{2}{5}$

14) $\log_5 6 \approx 1.1$
$\log_5 4 \approx 0.9$
$\log_5 7 \approx 1.2$
Find $\log_5 42$

15) $\log_7 12 \approx 1.3$
$\log_7 9 \approx 1.1$
$\log_7 10 \approx 1.2$
Find $\log_7 \frac{1}{12}$

16) $\log_7 4 \approx 0.7$
$\log_7 6 \approx 0.9$
$\log_7 5 \approx 0.8$
Find $\log_7 16$

Expand each logarithm.

17) $\ln \left(\frac{u}{v^4}\right)^3$

18) $\log_7 \left(z^3 \sqrt[3]{x}\right)$

19) $\log \left(\frac{x^2}{y}\right)^5$

20) $\log_2 \left(a^4 \cdot b\right)^5$

Condense each expression to a single logarithm.

21) $24 \log_6 x + 6 \log_6 y$

22) $3 \log_7 10 - 2 \log_7 3$

23) $\ln c + \frac{\ln a}{3} + \frac{\ln b}{3}$

24) $3 \ln 10 + 12 \ln 7$

Use a calculator to approximate each to the nearest thousandth.

25) $\log_3 3.7$

26) $\log_7 1.8$