ACC.GEO.CC Name_____

WS 15.3 Date_____ Period____

Rewrite each equation in logarithmic form.

1) $16^2 = 256$

2) $5^3 = 125$

3) $9^2 = 81$

4) $20^{-2} = \frac{1}{400}$

5) $144^{-\frac{1}{2}} = \frac{1}{12}$

6) $12^{-2} = \frac{1}{144}$

Rewrite each equation in exponential form.

7) $\log_4 2 = \frac{1}{2}$

8) $\log_5 625 = 4$

9) $\log_{13} \frac{1}{169} = -2$

10) $\log_{16} 256 = 2$

11) $\log_{125} \frac{1}{5} = -\frac{1}{3}$

12) $\log_{20} 20 = 1$

Evaluate each expression.

13) $\log_9 3$

14) $\log_2 32$

15) $\log_{\frac{1}{2}} \frac{1}{16}$

16) $\log_3 27$

17) $\log_6 216$

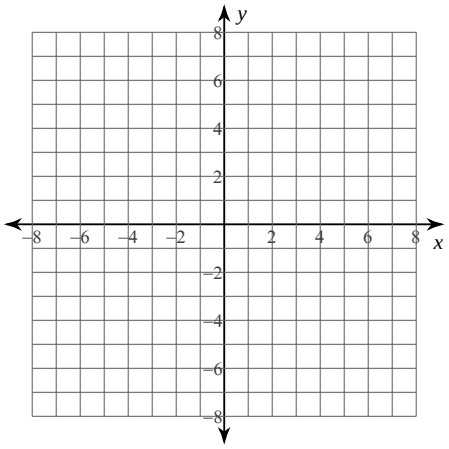
18) $\log_6 6$

19) $\log_2 \frac{1}{4}$

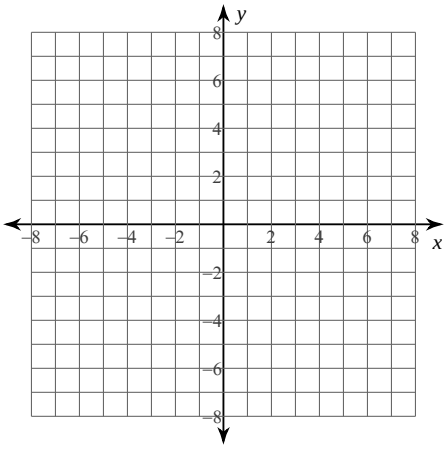
20) $\log_{\frac{1}{3}} \frac{1}{3}$

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

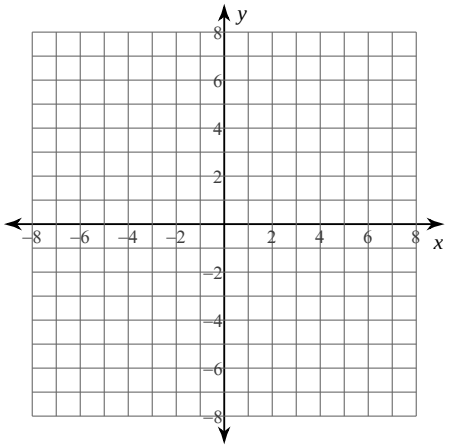
21) $f(x) = \log_4 (x - 1) + 4$



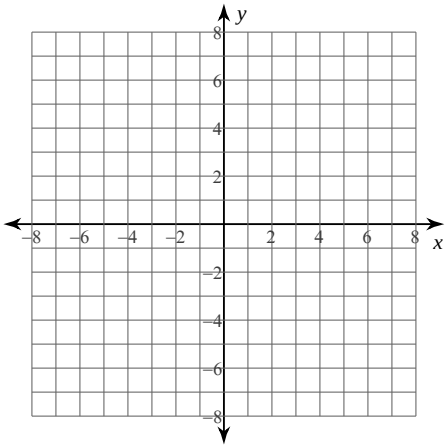
22) $f(x) = \log_3 (x - 1) - 5$



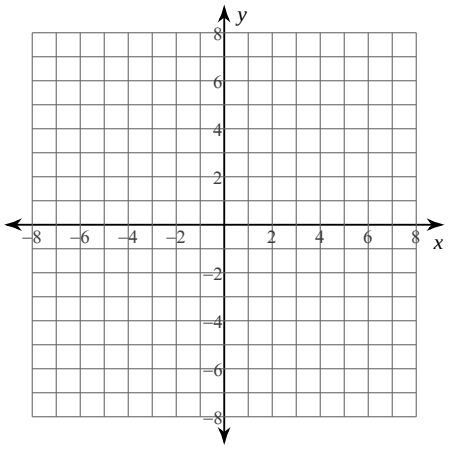
23) $f(x) = \log_6 (x + 2) + 1$



24) $f(x) = \log_4 (x - 2)$



25) $f(x) = \log_4 (x + 2) - 2$



26) $f(x) = \log_{\frac{1}{3}} (x + 3) + 2$