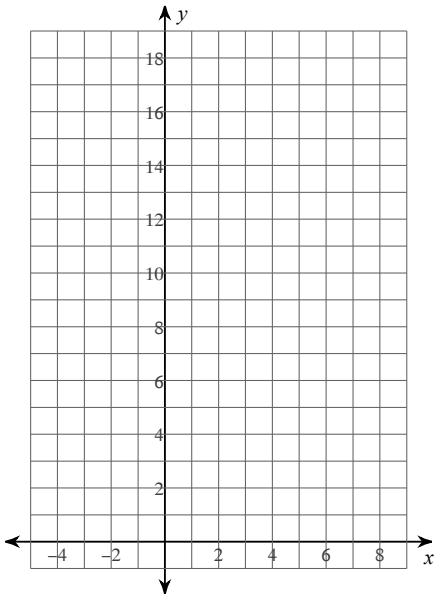
Precalculus Name_____

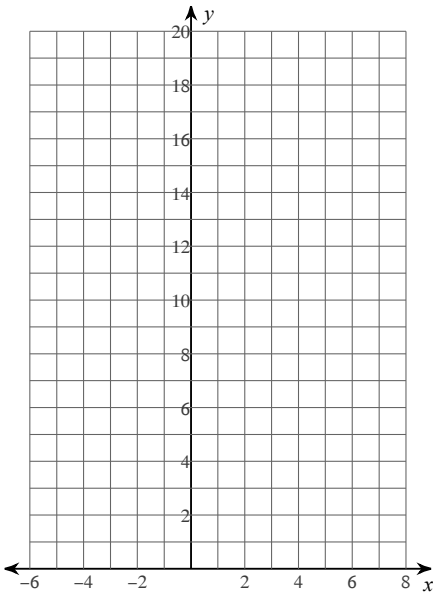
T7 Review: exponential and logarithmic functions

Sketch the graph of each function by using the points (0, a) and (1, ab). Draw and label the asymptote on the graph. State the domain and range.

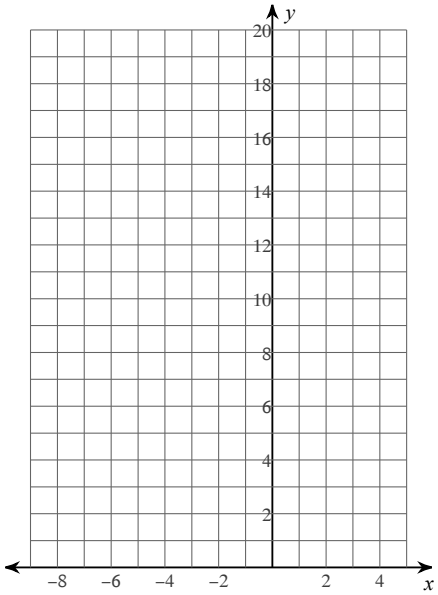
1) $y = \frac{1}{2} \cdot 3^{x-2} - 1$



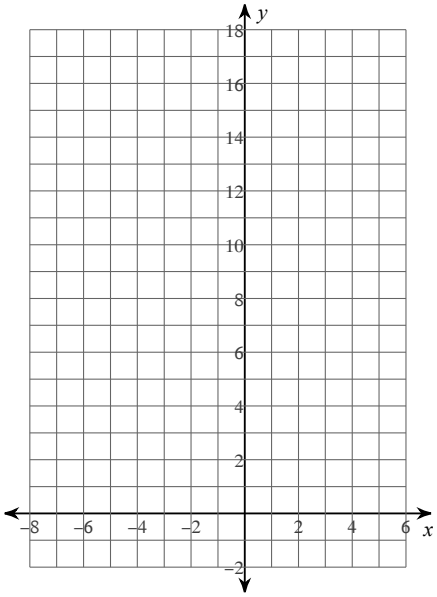
2) $y = \frac{1}{3} \cdot 3^{x-1} + 2$



3) $y = 3 \cdot \left(\frac{1}{2}\right)^{x+2} + 2$

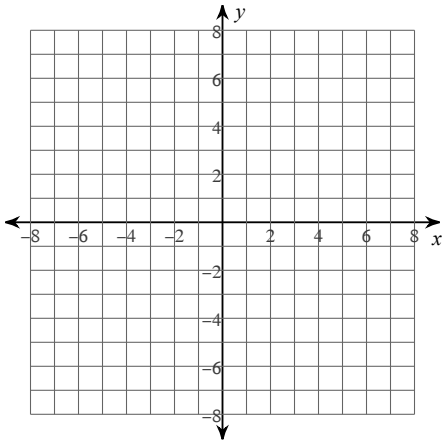


4) $y = 5 \cdot \left(\frac{1}{2}\right)^{x+1} - 2$

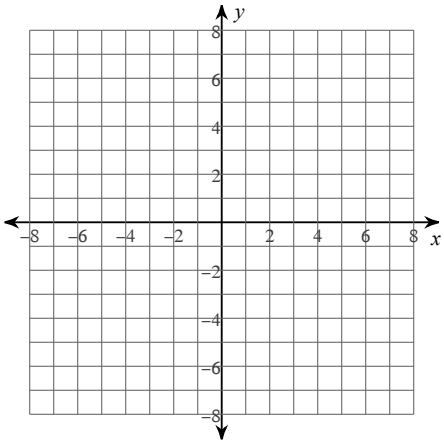


Identify the domain and range of each. Then sketch the graph using the points (1, 0) and (base #, 1). Draw and label the asymptote on the graph.

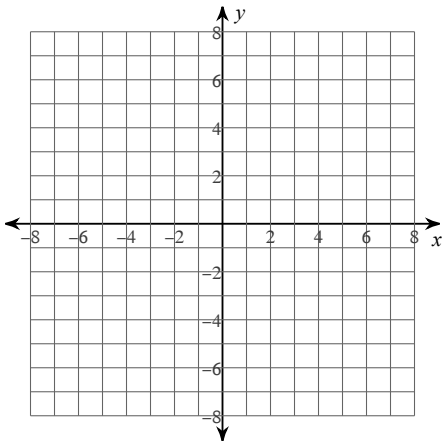
5) $y = \log_6 (x + 5) + 1$



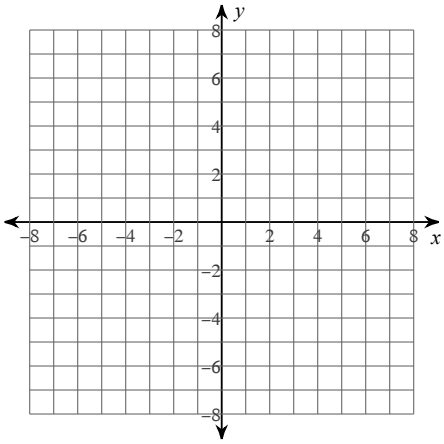
6) $y = \log_5 (x + 6) + 1$



7) $y = \log_3 (x - 1) + 1$



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



Rewrite each equation in exponential form.

9) $\log_{12} 144 = 2$

10) $\log_9 1 = 0$

Rewrite each equation in logarithmic form.

11) $16^{-2} = \dfrac{1}{256}$

12) $2^4 = 16$

Evaluate each expression.

13) $\log_3 243$

14) $\log_4 16$

15) $\log_7 \dfrac{1}{49}$

16) $\log_2 \dfrac{1}{2}$

Expand each logarithm.

17) $\log_4 (a \cdot b)^5$

18) $\log_3 \frac{a}{b^5}$

19) $\log \sqrt[3]{12^2}$

Condense each expression to a single logarithm.

20) $\log_3 8 + \log_3 7 + \log_3 11$

21) $5\log_4 x + 5\log_4 y$

22) $4\log_5 x - \log_5 y$