Write each in its equivalent logarithmic or exponential form:
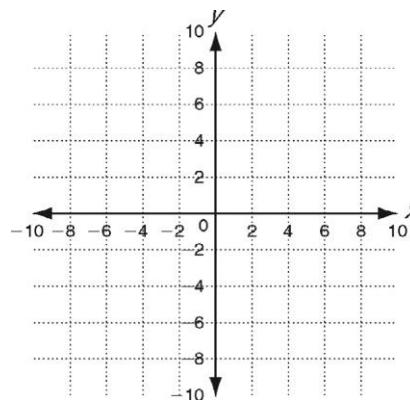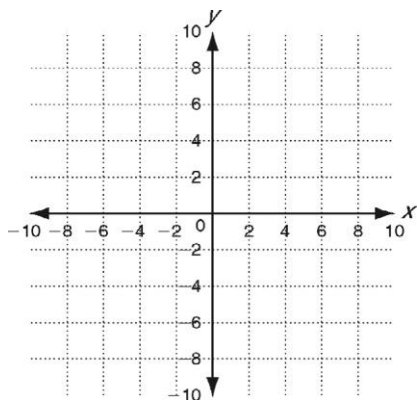
1. $3^7 = 2187$

2. $\log_4 1024 = 5$

Graph each function. Find the asymptote. Tell how the graph is transformed from the graph of its parent function.

3. $f(x) = \log_2 x + 4$

4. $f(x) = 3\log_4(x + 6)$

For #'s 5-14, solve for x. <u>Box your FINAL ANSWER please.</u>

5. $\log_x 144 = -2$	6. $2^x = 55$
7. $81^{x-1} = \dfrac{1}{27}$	8. $\log_5 x = 4$
9. $16^{5x} = 64^{x+7}$	10. $\left(\dfrac{1}{32}\right)^{2x} = 64$
11. $6e^{10x-8} - 4 = 32$	12. $8(10)^{7x-6} - 8 = 56$
13. Solve for x. $\log_5 5^{x+1} = \log_5 625$	14. Solve for x. Check for extraneous solutions. $\log_2 x + \log_2(x+1) + \log_2 2 = 2$
15. Express as a single log of a single argument: $3\log x - \dfrac{1}{2}\log y + \dfrac{2}{3}\log z$	16. Use the laws of logarithms to expand the following single log: $\log_3 \dfrac{x^5 y}{z^2}$