Practice of exponential functions

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Exercise 1 Identify the base of the following function $f(x) = 3^x$ and evaluate at the following points, $f(-2),\ f(0),\ f(2),\ f(6)$.

Exercise 2 To obtain the function $g(x) = 3^x - 1$ from $f(x) = 3^x$, what kind of shift is needed?

Exercise 3 To obtain the function $g(x) = 3^{x-1}$ from $f(x) = 3^x$, what kind of shift is needed?

Exercise 4 Find the asymptote or aymptotes of the function $f(x) = (1/2)^x$. Complete the following sentence: This means that as $x \to$ we have $(1/2)^x \to$.

Exercise 5 Let f be the exponential function $f(x) = a^x$, where $a > 0$. What is the domain of f? Whats is the range of f? Scketch graphs of f for the following cases: $a > 1$ and $a \in [0,1]$.

Exercise 6 If x is large, which function grows faster, $f(x) = 2^x$ or $g(x) = x^2$.

Exercise 7 State the domain, range and asymptote of the following functions,

$$f(x) = 3^{x-2}, \quad g(x) = 3 + 2^x, \quad f(x) = -e^{x+1} - 2$$

Exercise 8 Simplify the radicals,

$$\sqrt{32}\sqrt{2}, \quad \frac{\sqrt[3]{-2}}{\sqrt[3]{54}}, \quad \sqrt{xy}\sqrt{x^3y}, \quad \frac{\sqrt[5]{96a^6}}{\sqrt[5]{3a}}$$