MATH 1314

Chapter 4.1: Exponential and Logarithmic Functions

$f(x) = a^x \qquad a > 0 \text{ and } a \neq 1$

Yes

$f(x) = 2^x \qquad f(x) = 10^x \qquad f(x) = 3^{x+1} \qquad f(x) = \left(\frac{1}{2}\right)^{x-1}$

No

$f(x) = x^2 \qquad f(x) = 1^x \qquad f(x) = (-1)^x \qquad f(x) = x^x$

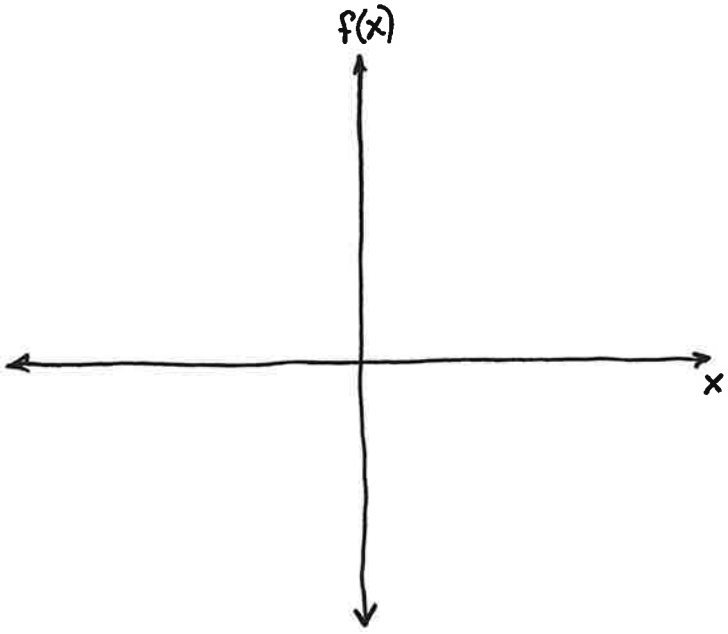
Graph $f(x) = a^x$.

Domain

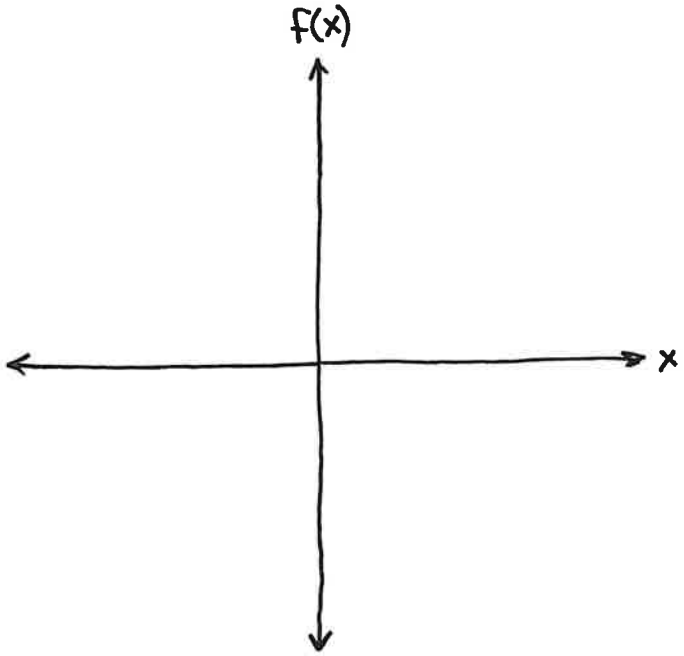
Range

Intercept

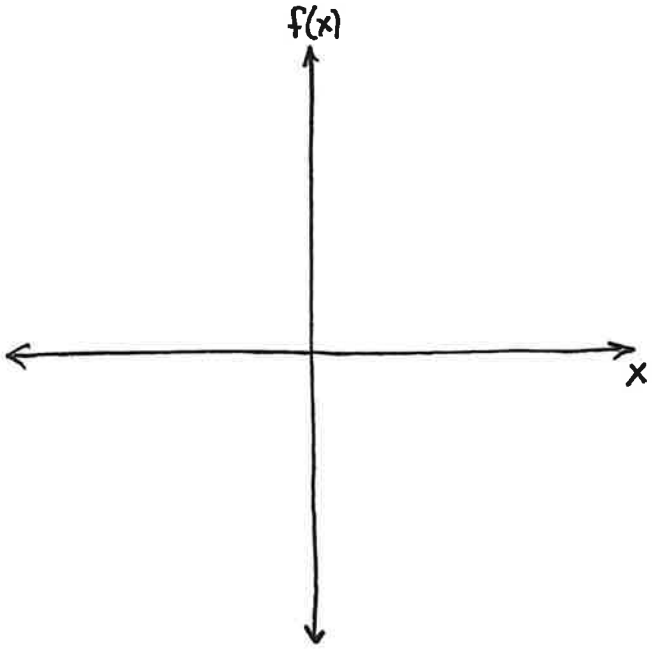
Asymptote



Graph $f(x) = 2^x$.



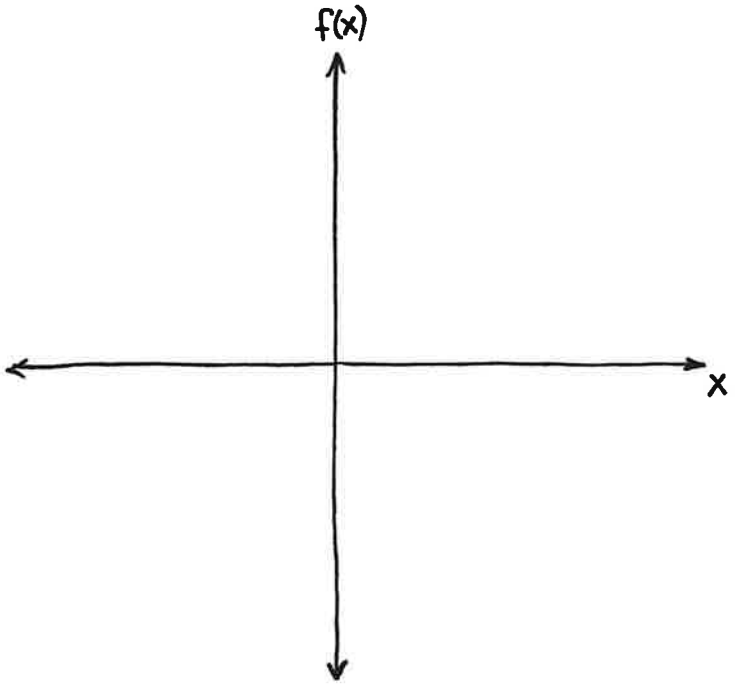
Graph $f(x) = (1/2)^x$.



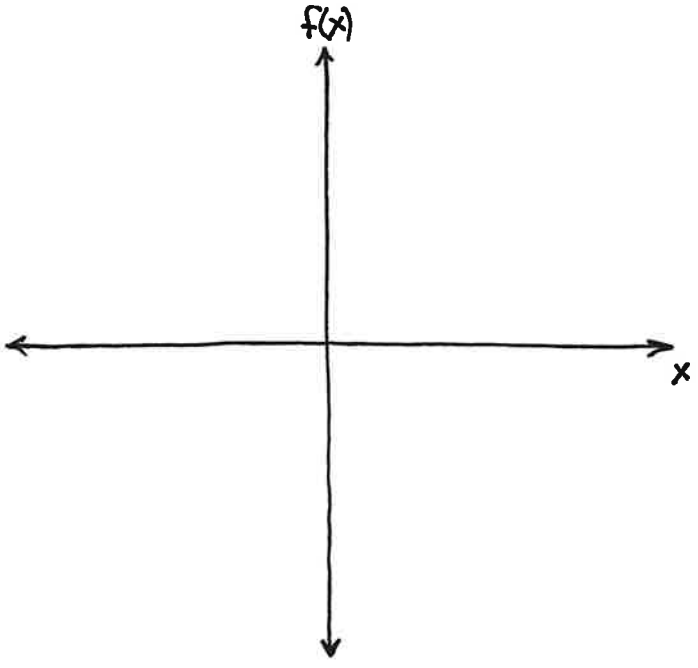
$f(x) = a^x$

$f(x) = \pm b \cdot a^{c(x-h)} + k$

Graph $f(x) = 3^{x+1}$.



Graph $f(x) = 2^{x-3}$.



Compound Interest

$$A = P\left(1 + \frac{R}{N}\right)^{Nt} \qquad A = Pe^{Rt}$$

Example: If $10000 is invested at 8% annually, which plan would provide a better return after 5 years: compounding quarterly or compounding continuously?