

## Chapter 4.2: Exponential Functions

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

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

NO:  $f(x) = x^2$      $f(x) = (-1)^x$   
 $f(x) = 1^x$      $f(x) = x^x$

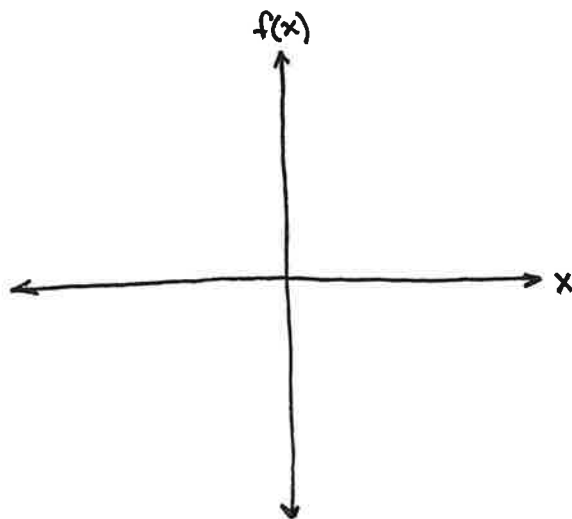
GRAPH  $f(x) = a^x$ .

DOMAIN:

RANGE:

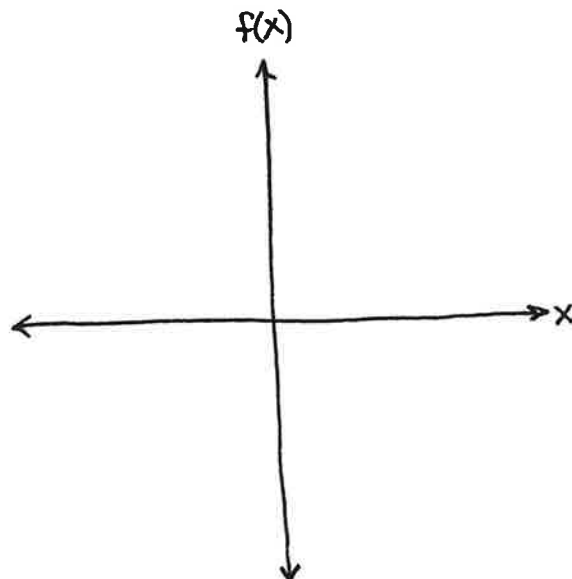
INTERCEPT:

ASYMPTOTE:



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

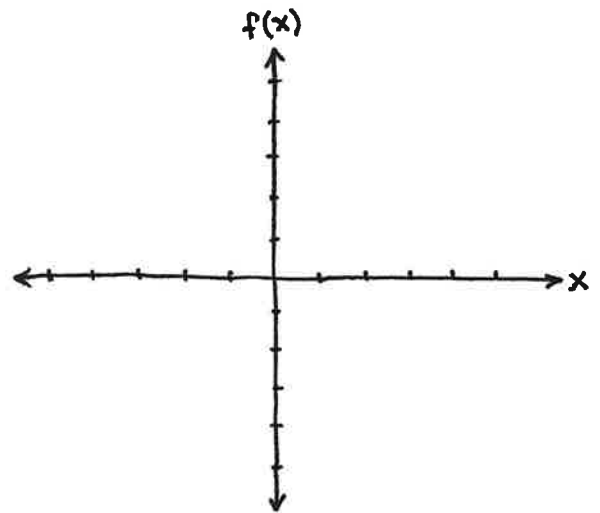
GRAPH  $f(x) = \left(\frac{1}{2}\right)^x$ .



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

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

GRAPH  $f(x) = 2^{x-3} + 1$ .



SIMPLE INTEREST

COMPOUND INTEREST  
N TIMES A YEAR

COMPOUND INTEREST  
CONTINUOUSLY

IF \$10000 IS INVESTED AT 8% ANNUALLY, WHICH PLAN WOULD PROVIDE A BETTER RETURN AFTER 5 YEARS: COMPOUNDING QUARTERLY, OR COMPOUNDING CONTINUOUSLY?