# Video 4.2 Exponential Functions

$f(x) = a \cdot b^x$ $\qquad b > 0$ and $b \neq 1$

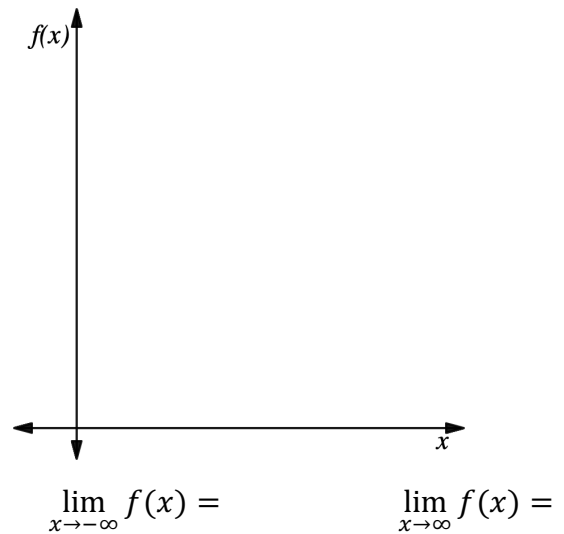What do $a$ and $b$ represent?

| $b > 1$ | $0 < b < 1$ |
|---|---|



$\lim\limits_{x \to -\infty} f(x) =$ $\qquad$ $\lim\limits_{x \to \infty} f(x) =$ $\qquad\qquad$ $\lim\limits_{x \to -\infty} f(x) =$ $\qquad$ $\lim\limits_{x \to \infty} f(x) =$
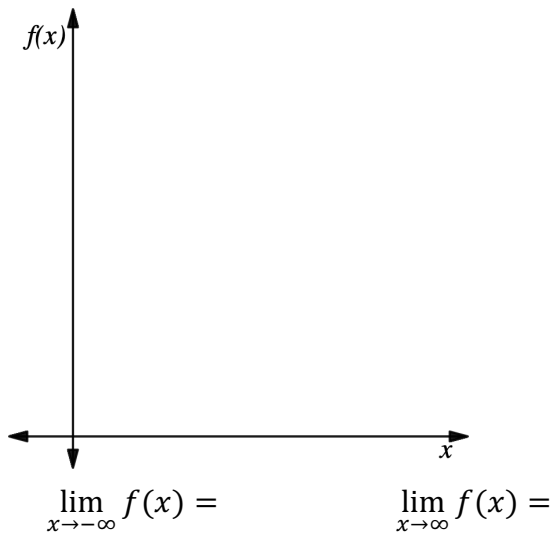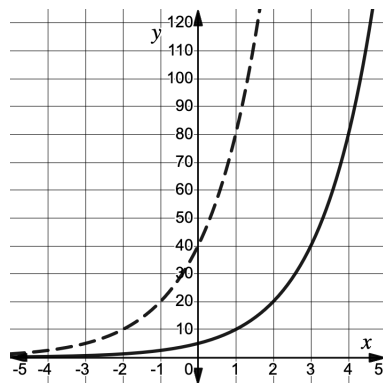
Domain: $\qquad\qquad\qquad$ Range:

Transformations of Exponential Functions

Let $f(x) = 5 \cdot 2^x$

$f(x + 3) =$



Example:
For a function $g$ given by $g(x) = ab^x$ where $a < 0$ and $0 < b < 1$, which of the following statements is true?

A) $\lim\limits_{x \to \infty} g(x) = -\infty$

B) $g(20) > g(30)$

C) The rates of change of $g$ are decreasing.

D) $\dfrac{g(n+1)}{g(n)} > 1$ for all $n$.

AP Exam Tips:

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