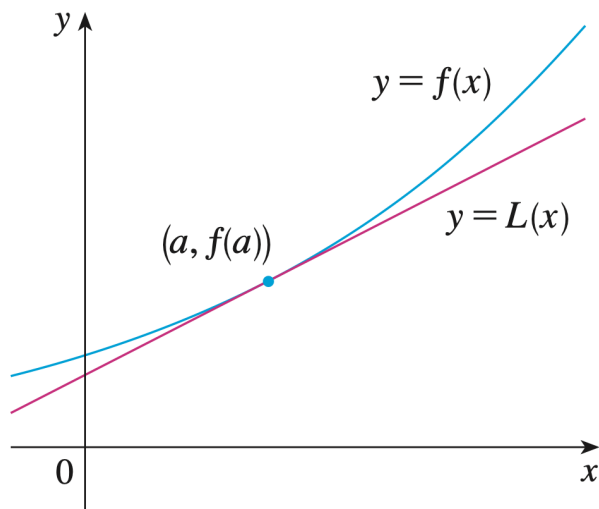
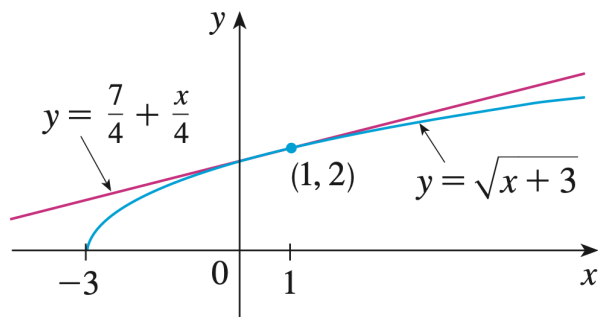


3.10 Linear Approximation

Question. We can use the tangent line at $(a, f(a))$ to approximate $y = f(x)$. What is the equation of this tangent line?



Example. Find the linearization of the function $f(x) = \sqrt{x+3}$ at $a = 1$ and use it to approximate the numbers $\sqrt{3.98}$ and $\sqrt{4.05}$. Are these approximations overestimates or underestimates?



Example. Use a linear approximation to estimate $e^{-0.015}$.

Example. Use a linear approximation to estimate $(2.001)^5$.