<u>Local Linearity and Linear Approximations</u>

The linear approximation to $f(x)$ near $x = x_0$ is given by $y = f(x_0) + f'(x_0)(x - x_0)$ for x sufficiently close to x_0. In other words, find the equation of the tangent line at $\left(x_0, f(x_0)\right)$ and use that equation to approximate the value at the value you need an estimate for.