Question #17025

The linear approximation involves the expansion of function into series with linear terms only:

$f(x)=f(x_0)+f'(x_0)(x-x_0)$. For our case, $\sqrt{x}'=\frac{1}{2\sqrt{x}}$,

$\sqrt{37}=\sqrt{36}+\frac{1}{2\sqrt{36}}(37-36)=6+1/12\approx 6.083$.