

A rollercoaster rail is designed so that the top of the track reaches 240 feet above ground. The curved portions of the track are parabolic while the ramp up to the top is linear. Determine the constants in the linear portion of the track so that it both meets the top parabola, $y = 240 - 0.01x^2$, at $x = -60$ and also forms a smooth junction between the tracks.

$$f(x) = \begin{cases} kx + b & : x \leq -60 \\ 240 - 0.01x^2 & : x > -60 \end{cases}$$

