Question # 12180

Write an equation for a rational function with: Vertical Asymptotes at $x = -4$ and $x = -6$ x-intercepts at $x = -3$ and $x = 6$. Horizontal Asymptote at $y = 7$.

Solution. We are to find this function as $y(x) = a\frac{(x+3)(x-6)}{(x+4)(x+6)}$, where a is unknown constant. Horizontal Asymptote is 7, thus $y(\infty) = 7$, so $a = 7$.

Answer. $y(x) = 7\frac{(x+3)(x-6)}{(x+4)(x+6)}$.