1. а) $\lim\limits_{x\to 6} \dfrac{x^2-36}{x^2-x-30} = \lim\limits_{x\to 6} \dfrac{(x-6)(x+6)}{(x-6)(x+5)} = \lim\limits_{x\to 6} \dfrac{x+6}{x+5} = \dfrac{12}{11}$

б) $\lim\limits_{x\to 7} \dfrac{x^2-49}{x^2-13x+42} = \lim\limits_{x\to 7} \dfrac{(x-7)(x+7)}{(x-7)(x-6)} = \dfrac{14}{1} = 14$

в) $\lim\limits_{x\to 0} \dfrac{3x\,tg\,4x}{1-\cos 4x} = \lim\limits_{x\to 0} \dfrac{2\cdot 12x^2}{16x^2} = \dfrac{12}{8} = \dfrac{3}{2} = 1{,}5$

е) $\lim\limits_{x\to\infty} \left(\dfrac{4x}{4x+3}\right)^{\frac{5x^2}{7x-1}} = \lim\limits_{x\to\infty} e^{\left(\frac{4x}{4x+3}-1\right)\frac{5x^2}{7x-1}} =$

$= \lim\limits_{x\to\infty} \exp\left\{\left(-\dfrac{3}{4x+3}\right)\dfrac{5x^2}{7x-1}\right\} = \lim\limits_{x\to\infty} \exp\left\{\dfrac{-15x^2}{28x^2+17x-3}\right\} =$

$= e^{-\frac{15}{28}}$