Worksheet 06/19 - MAC 2311, Summer B 2019 **Group number:** _____

1. Compute each of the following limits:

(*a*) $\lim_{x\to 0} \dfrac{\sin(5x)}{x} =$

$\lim_{x\to 0} \dfrac{\sin(ax)}{x} =$

(*b*) $\lim_{x\to 0} \dfrac{\tan(3x)}{x} =$

$\lim_{x\to 0} \dfrac{\tan(bx)}{x} =$

(*c*) $\lim_{x\to 0} \dfrac{1-\cos(x)}{x}$

(*d*) $\lim_{x\to 0} \dfrac{\tan^2(3x)}{x\sin(5x)}$

(*e*) $\lim_{x\to 0} \dfrac{\sin(3x^2)+x^2}{\sin^2(3x)}$

(*f*) $\lim_{x\to+\infty} x\tan(3/x)$ Hint: Use the substitution technique.

(*g*) $\lim_{x\to+\infty} \dfrac{\sin(5x)}{x}$ Hint: Be careful! Here x does not go to zero!