(1) $$\lim_{x \to -\infty} \left(\frac{x^4 \sin \frac{1}{x} + x^2}{1 + |x|^3} \right)$$

$$= \lim_{x \to -\infty} \frac{x^4 \sin \frac{1}{x} + x^2}{1 - x^3}$$

On dividing by x^3

$$\lim_{x \to -\infty} \frac{\frac{\sin(1/x)}{(1/x)} + \frac{1}{x}}{\frac{1}{x^3} - 1} = \frac{1+0}{0-1} = -1$$