

Some limit problems

Evaluate each of the following limits. For each problem, be sure to understand which symbol represents inputs for the function. It is implied that any other symbol represents a constant.

$$1. \lim_{x \rightarrow t} \frac{x^2 - t^2}{x - t}$$

$$2. \lim_{p \rightarrow q} \frac{p^3 - q^3}{p - q}$$

$$3. \lim_{h \rightarrow 0} \frac{\frac{1}{x+h} - \frac{1}{x}}{h}$$

$$4. \lim_{x \rightarrow 0} \frac{\sqrt{a+x} - \sqrt{a}}{x}$$

$$5. \lim_{h \rightarrow 0} \frac{\sin(x+h) - \sin x}{h}$$