

CALCULUS
Simple limit problems
OLD

0170-1. Use the graph of f given below to find the value of each quantity, if it exists.

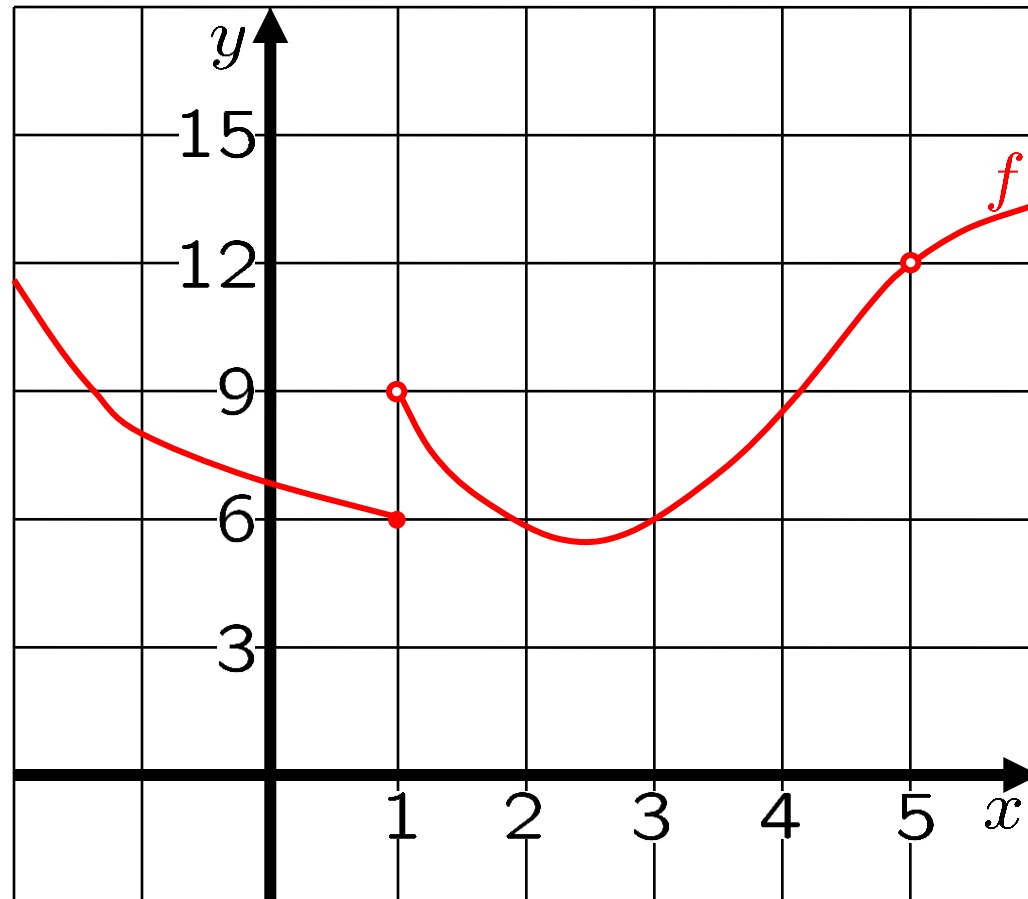
(a) $\lim_{x \rightarrow 1^-} f(x)$

(b) $\lim_{x \rightarrow 1^+} f(x)$

(c) $\lim_{x \rightarrow 1} f(x)$

(d) $\lim_{x \rightarrow 5} f(x)$

(e) $f(5)$



0170-2. Use the graph of f given below to find the value of each quantity, if it exists.

(a) $\lim_{x \rightarrow 1^-} f(x)$

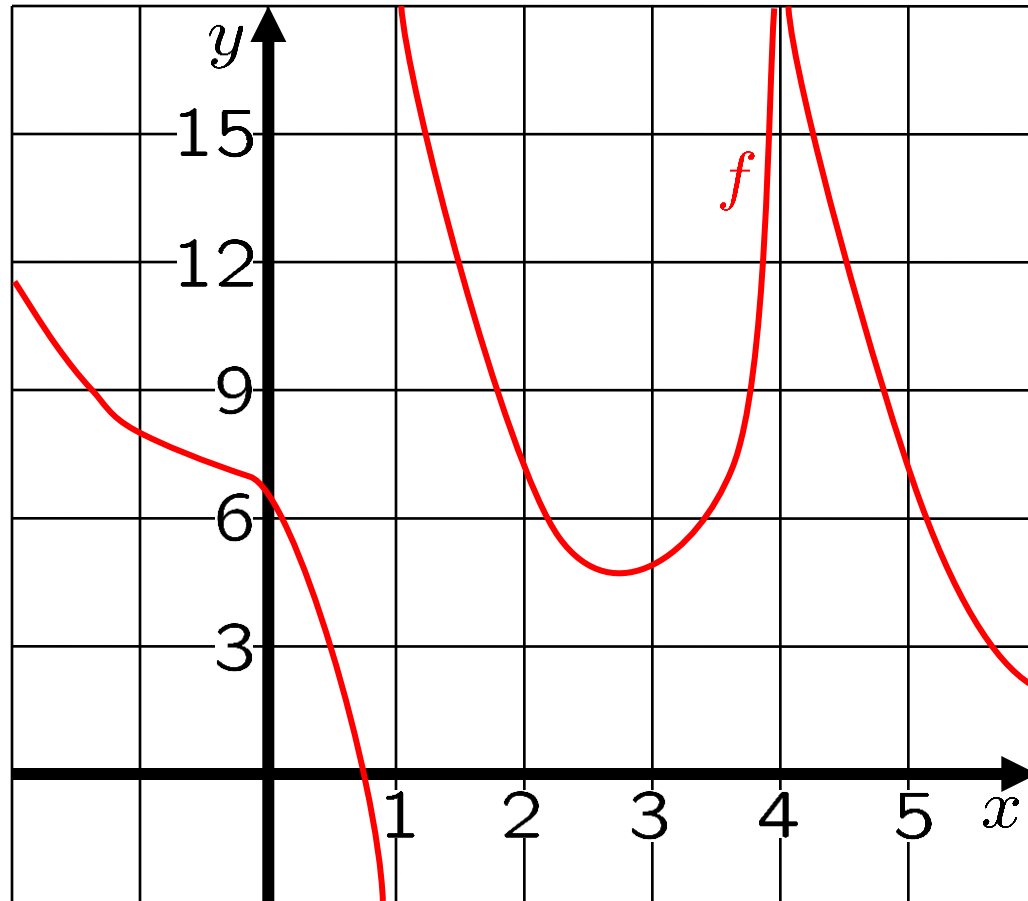
(b) $\lim_{x \rightarrow 1^+} f(x)$

(c) $\lim_{x \rightarrow 1} f(x)$

(d) $\lim_{x \rightarrow 4^-} f(x)$

(e) $\lim_{x \rightarrow 4^+} f(x)$

(f) $\lim_{x \rightarrow 4} f(x)$



0170-3. Show a graph of a function h s.t.

OLD

$$\lim_{x \rightarrow 2^-} h(x) = 7, \quad \lim_{x \rightarrow 2^+} h(x) = 6, \quad h(2) = 5,$$

$$\lim_{x \rightarrow 3} h(x) = -\infty,$$

$$\lim_{x \rightarrow 4^-} h(x) = \infty, \quad \lim_{x \rightarrow 4^+} h(x) = -\infty,$$

$$\lim_{x \rightarrow -\infty} h(x) = -3 \quad \text{and} \quad \lim_{x \rightarrow \infty} h(x) = 1.$$

0170-4. Let $f(x) = 6 \left[\frac{x - \sin x}{x^3} \right]$.

OLD

a. Compute $f(-1)$, $f(-0.1)$, $f(-0.01)$,
 $f(1)$, $f(0.1)$ and $f(0.01)$.

Give your answers to six decimal places.

b. Guess $\lim_{x \rightarrow 0} f(x)$.

0170-5. a. Compute $\lim_{x \rightarrow 1^-} \frac{2x + 3}{x - 1}$,

or explain why the limit
does not exist.

b. Compute $\lim_{x \rightarrow 1^+} \frac{2x + 3}{x - 1}$,

or explain why the limit
does not exist.

c. Compute $\lim_{x \rightarrow 1} \frac{2x + 3}{x - 1}$,

or explain why the limit
does not exist.