

CALCULUS
Simple limit problems
OLD2

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

OLD2

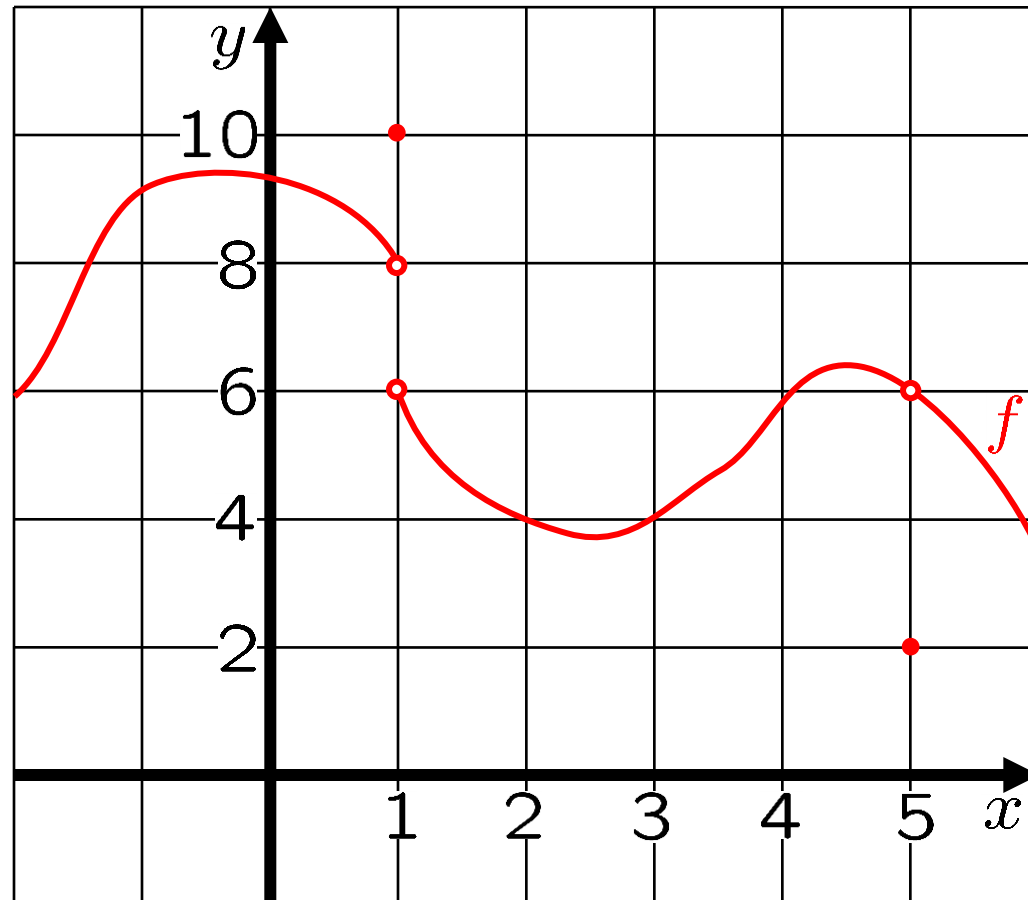
(a) $\lim_{x \rightarrow 1^-} f(x)$

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

(c) $\lim_{x \rightarrow 2} f(x)$

(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.

OLD2

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

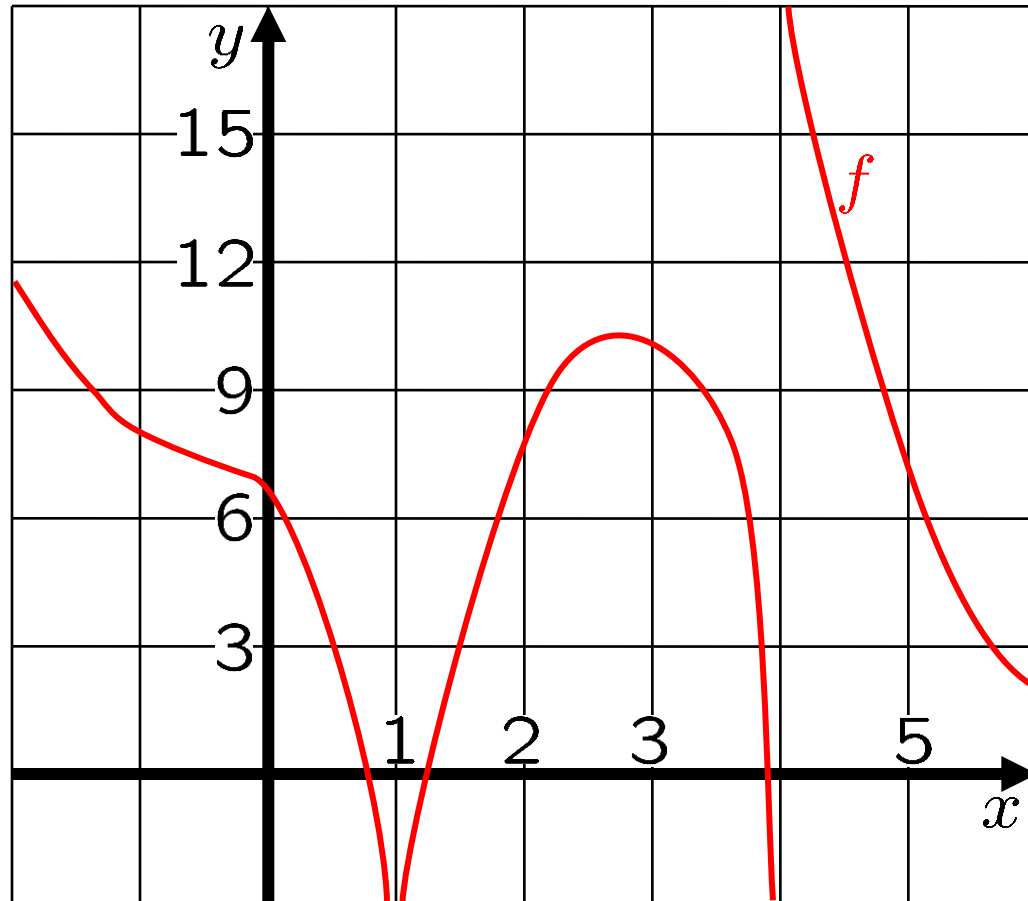
(b) $\lim_{x \rightarrow 1^+} f(x)$

(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.
OLD2

$$\lim_{x \rightarrow 1^-} h(x) = 5, \quad \lim_{x \rightarrow 1^+} h(x) = 6, \quad h(1) = 7,$$

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

$$\lim_{x \rightarrow 4} h(x) = 3, \quad h(4) = 2,$$

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

0170-4. Let $g(t) = 8 \left[\frac{1 - \cos t}{t^2} \right]$.

OLD2

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

Give your answers to six decimal places.

b. Guess $\lim_{t \rightarrow 0} g(t)$.

0170-5.
OLD2

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

or explain why the limit
does not exist.

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

or explain why the limit
does not exist.

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

or explain why the limit
does not exist.