4) For the function f whose graph is given, state the value of the given quantity, if it exists. If it does not exist, explain why.
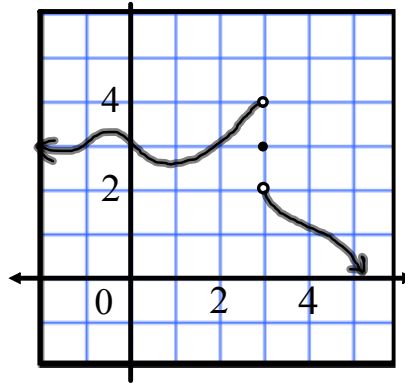
a) $\lim\limits_{x \to 0} f(x) =$

b) $\lim\limits_{x \to 3^-} f(x) =$

c) $\lim\limits_{x \to 3^+} f(x) =$

d) $\lim\limits_{x \to 3} f(x) =$

e) $f(3) =$

5) For the function f whose graph is given, state the value of the given quantity, if it exists. If it does not exist, explain why.

a) $\lim\limits_{x \to 1^-} f(x) =$

b) $\lim\limits_{x \to 1^+} f(x) =$

c) $\lim\limits_{x \to 1} f(x) =$

d) $\lim\limits_{x \to 5} f(x) =$

e) $f(5) =$

6) For the function g whose graph is given, state the value of the given quantity, if it exists. If it does not exist, explain why.
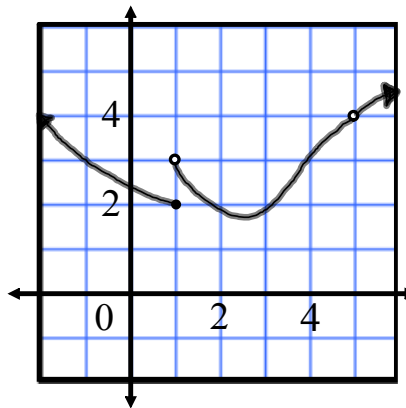
a) $\lim\limits_{x \to -2^-} g(x) =$

b) $\lim\limits_{x \to -2^+} g(x) =$

c) $\lim\limits_{x \to -2} g(x) =$

d) $g(-2) =$

e) $\lim\limits_{x \to 2^-} g(x) =$

f) $\lim\limits_{x \to 2^+} g(x) =$

g) $\lim\limits_{x \to 2} g(x) =$

h) $g(2) =$

i) $\lim\limits_{x \to 4^+} g(x) =$
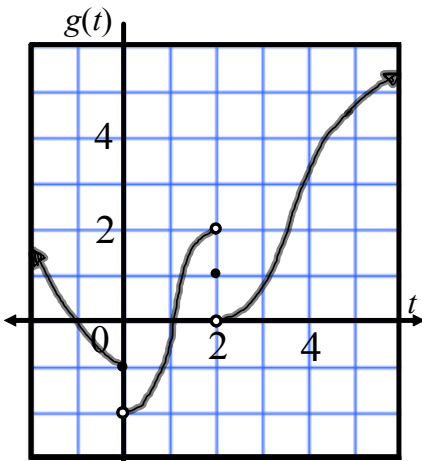
j) $\lim\limits_{x \to 4^-} g(x) =$
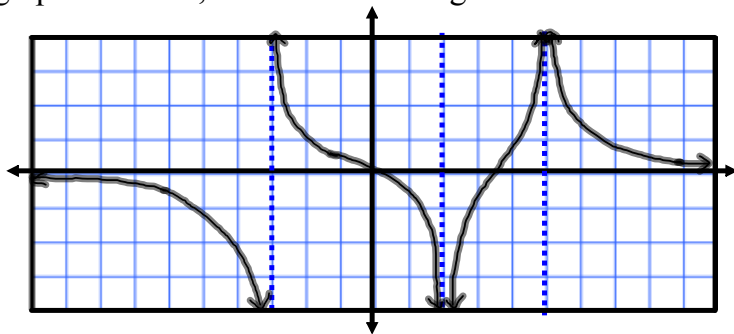
k) $g(0) =$

l) $\lim\limits_{x \to 0} g(x) =$

1
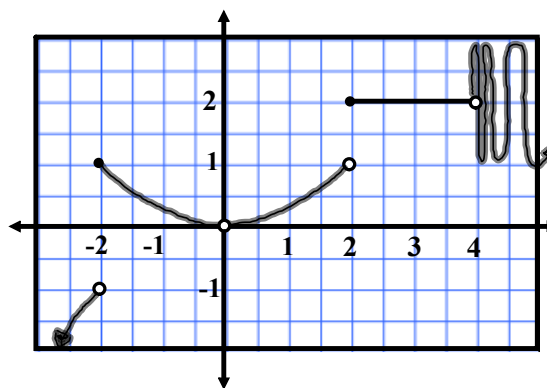
7) For the function g whose graph is given, state the value of the given quantity, if it exists. If it does not exist, explain why.

a) $\lim\limits_{t \to 0^-} g(t) =$

b) $\lim\limits_{t \to 0^+} g(t) =$

c) $\lim\limits_{t \to 0} g(t) =$

d) $\lim\limits_{t \to 2^-} g(t) =$

e) $\lim\limits_{t \to 2^+} g(t) =$

f) $\lim\limits_{t \to 2} g(t) =$

g) $g(2) =$

h) $\lim\limits_{t \to 4} g(t) =$

8) For the function R whose graph is shown, state the following:

a) $\lim\limits_{x \to 2} R(x) =$

b) $\lim\limits_{x \to 5} R(x) =$

c) $\lim\limits_{x \to 3^-} R(x) =$

d) $\lim\limits_{x \to 3^+} R(x) =$

9) For the function R whose graph is shown, state the following:

a) $\lim\limits_{x \to -7} f(x) =$

b) $\lim\limits_{x \to -3} f(x) =$

c) $\lim\limits_{x \to 0} f(x) =$

d) $\lim\limits_{x \to 6^-} f(x) =$
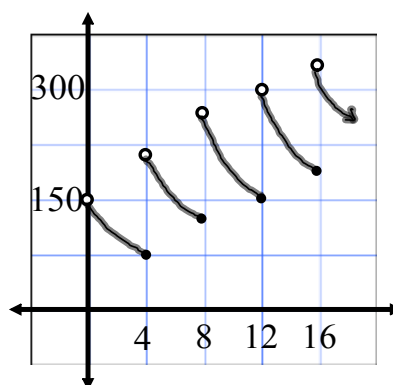
e) $\lim\limits_{x \to 6^+} f(x) =$
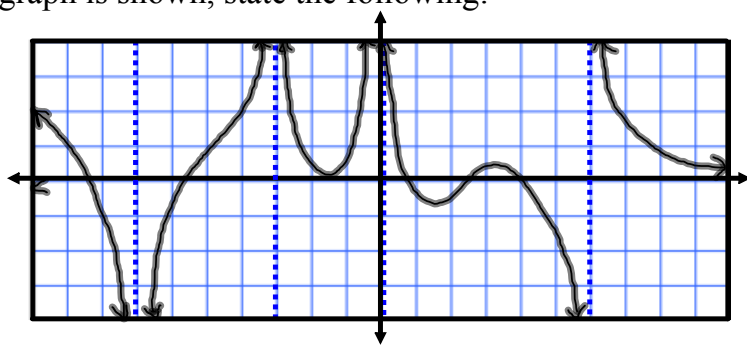
f) The equations of the vertical asymptotes.

10) A patient receives a 150-mg injection of a drug every 4 hours. The graph
    shows the amount $f(t)$ of the drug in the bloodstream after t hours. Find

$$\lim_{t \to 12^-} f(t) \quad \text{and} \quad \lim_{t \to 12^+} f(t)$$

and explain the significance of these
one-sided limits.

11) Use the graph of the function $f(x) = \dfrac{1}{1 + 2^{\frac{1}{x}}}$

to state the value of each limit, if it exists. If it does not, explain why.

a) $\displaystyle \lim_{x \to 0^-} f(x) =$

b) $\displaystyle \lim_{x \to 0^+} f(x) =$

c) $\displaystyle \lim_{x \to 0} f(x) =$