

---

QUESTION 1 (1 pts)

If  $c$  is a constant and the limit  $\lim_{x \rightarrow a} f(x)$  exists, then  $\lim_{x \rightarrow a} [cf(x)]$  is equivalent to:

- A.  $\lim_{x \rightarrow a} (cf(x))$
- B.  $c$
- C.  $c \lim_{x \rightarrow a} f(x)$
- D.  $\lim_{x \rightarrow a} (f(x)c)$

---

QUESTION 2 (1 pts)

If  $\lim_{x \rightarrow a} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow a} f(x)}{\lim_{x \rightarrow a} g(x)}$ , then:

- A.  $g(x) = 0$
- B.  $\lim_{x \rightarrow a} g(x) \neq 0$
- C.  $g(x) \neq 0$
- D.  $\lim_{x \rightarrow a} g(x) = 0$

---

QUESTION 3 (1 pts)

$\lim_{x \rightarrow a} [f(x)]^n$  is equivalent to:

- A.  $n \lim_{x \rightarrow a} f(x)$
- B.  $\lim_{x \rightarrow a} (nf(x))$
- C.  $n$
- D.  $[\lim_{x \rightarrow a} f(x)]^n$

---

QUESTION 4 (1 pts)

The substitution property says: If  $f$  is a polynomial or a rational function and  $a$  is in the domain of  $f$ , then:

- A.  $\lim_{x \rightarrow a} f(x) = a$
- B.  $\lim_{x \rightarrow a} f(a) = f(x)$
- C.  $\lim_{x \rightarrow a} f(x) = f(a)$
- D. The limit does not exist.

---

QUESTION 5

---

(1 pts)

The squeeze theorem says: If a function  $g(x)$  is squeezed between two functions,  $f(x)$  and  $h(x)$ , near  $a$ , and if  $f$  and  $h$  have the same limit,  $L$ , at  $a$ , then:

- A.  $g$  is forced to have the same limit,  $L$ , at  $a$ .
- B.  $f(x) = g(x) = h(x)$
- C.  $\lim_{x \rightarrow a} g(x) = f(x)$
- D.  $\lim_{x \rightarrow a} g(x) = a$

---

QUESTION 6

---

(1 pts)

To show that a function is continuous at a number  $a$ , you need to verify:

- A. The function is defined at  $x = a$ .
- B. The limit of the function exists at  $x = a$ .
- C. The limit of the function at  $x = a$  equals the value of the function at  $x = a$ .
- D. All of the above.

---

QUESTION 7

---

(1 pts)

A function is discontinuous at a number  $a$  if:

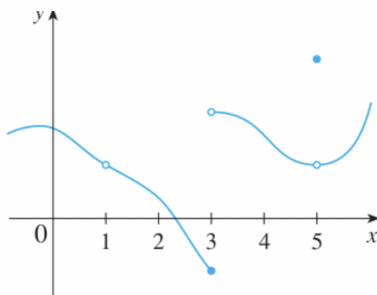
- A. At least one of the criteria from question 6 is not satisfied.
- B.  $f(x) = a$
- C.  $L = f(a)$
- D.  $\lim_{x \rightarrow a} f(x) = L$

---

QUESTION 8

---

(1 pts)



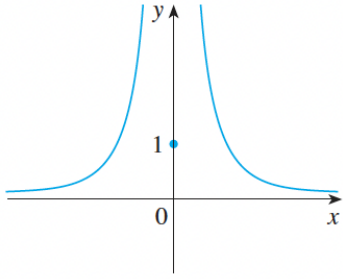
At which values of  $x$  is the function  $f$  (graph shown above) discontinuous?

- A. When  $x$  goes to  $\infty$
- B.  $x = 1$ ,  $x = 3$ , and  $x = 5$
- C. The function is continuous.
- D.  $x = 1$

---

QUESTION 9

(1 pts)



The graph above represents a function that is:

- A. Jump discontinuous.
- B. Infinitely discontinuous.
- C. Removably discontinuous.
- D. Continuous since  $f(0) = 1$ .

---

QUESTION 10

(1 pts)

If  $f$  is continuous at  $b$  and  $\lim_{x \rightarrow a} g(x) = b$ , then:

- A.  $f(x) = b$
- B.  $g(x) = f(b)$
- C.  $\lim_{x \rightarrow a} f(g(x)) = f(\lim_{x \rightarrow a} g(x)) = f(b)$
- D.  $f(b) = g(b)$