

Let 
$$f(x) = \begin{cases} ax + 1 & \text{if } x < 1 \\ 3 & \text{if } x = 1. \text{ If } f(x) \text{ is continuous at } x = 1 \text{ then } (a - b) \text{ is equal to-} \\ bx^2 + 1 & \text{if } x > 1 \end{cases}$$

- (A) 0
- (B) 1



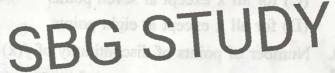
For the function  $f(x) = \frac{1}{x + 2^{\left(\frac{1}{x-2}\right)}}$ ,  $x \ne 2$  which of the following holds?

- (A) f(2) = 1/2 and f is continuous at x = 2 (B)  $f(2) \neq 0$ , 1/2 and f is continuous at x = 2
- (C) f can not be continuous at x = 2
- (D) f(2) = 0 and f is continuous at x = 2.



The function  $f(x) = \frac{4-x^2}{4x-x^3}$ , is-

- (A) discontinuous at only one point in its domain.
- (B) discontinuous at two points in its domain.
- (C) discontinuous at three points in its domain.
- (D) continuous everywhere in its domain.





 $-4\sin x + \cos x$  for  $x \le -\frac{\pi}{2}$ If  $f(x) = a \sin x + b$  for  $-\frac{\pi}{2} < x < \frac{\pi}{2}$  is continuous then:  $\cos x + 2$  for  $x \ge \frac{\pi}{2}$ 

(A) a = -1, b = 3

(B) a = 1, b = -3

(C) a = 1, b = 3

(D) a = -1, b = -3



The function  $f(x) = \begin{vmatrix} \frac{1}{4}(3x^2 + 1) & -\infty < x \le 1 \\ 5 - 4x & 1 < x < 4 \text{ is} \\ 4 - x & 4 \le x < \infty \end{vmatrix}$ 

- (A) continuous at x = 1 & x = 4
- (B) continuous at x = 1, discontinuous at x = 4
- (C) continuous at x = 4, discontinuous at x = 1
- (D) discontinuous at x = 1 & x = 4



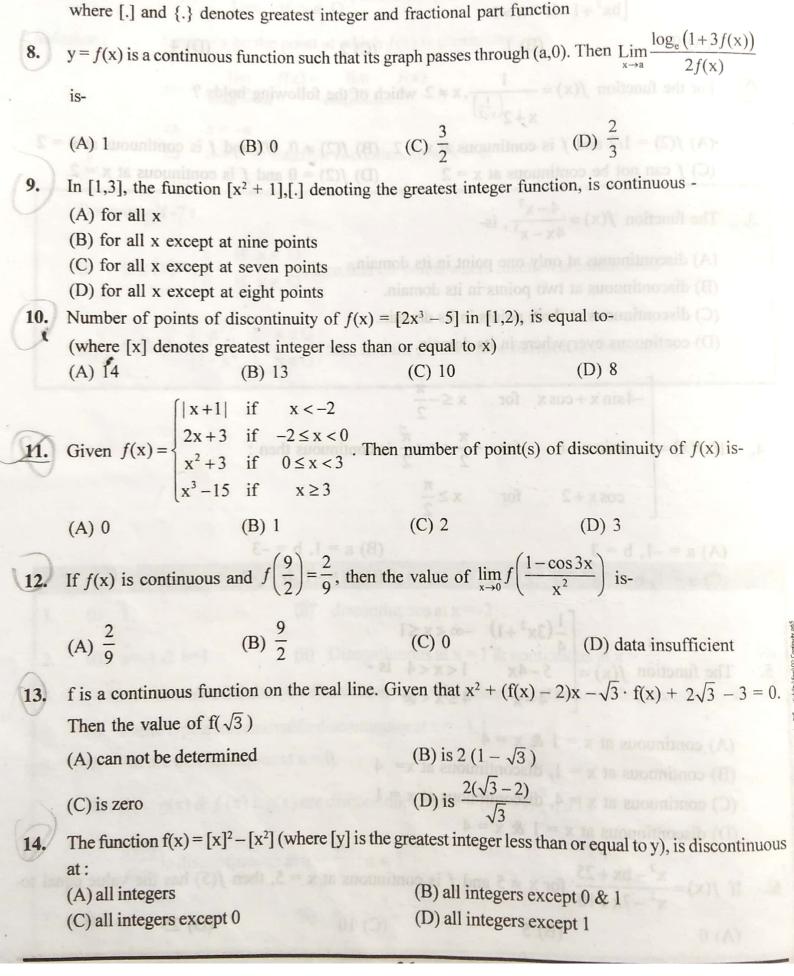
If  $f(x) = \frac{x^2 - bx + 25}{x^2 - 7x + 10}$  for  $x \ne 5$  and f is continuous at x = 5, then f(5) has the value equal to-

(A) 0

(B) 5

(C) 10

(D) 25



If  $f(x) = \frac{x - e^x + \cos 2x}{x^2}$ ,  $x \ne 0$  is continuous at x = 0, then

(A)  $f(0) = \frac{5}{2}$