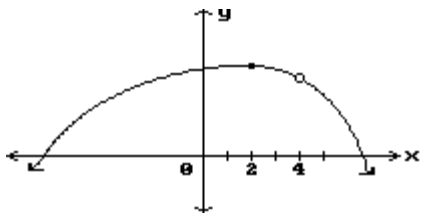


Continuity

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find all points where the function is discontinuous.

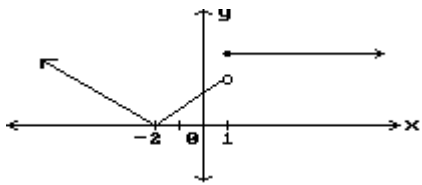
1)



- A) None B) $x = 4, x = 2$ C) $x = 2$ D) $x = 4$

1) _____

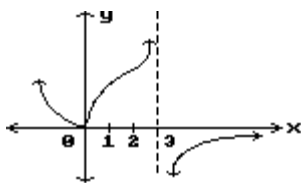
2)



- A) None B) $x = -2, x = 1$ C) $x = 1$ D) $x = -2$

2) _____

3)



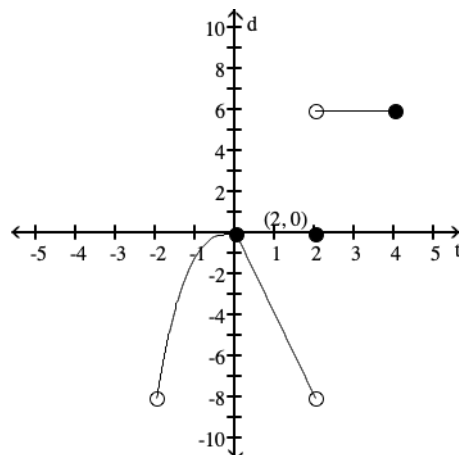
- A) $x = 0, x = 3$ B) $x = 3$ C) $x = 0$ D) None

3) _____

Provide an appropriate response.

4) Is f continuous on $(-2, 4]$?

$$f(x) = \begin{cases} x^3, & -2 < x \leq 0 \\ -4x, & 0 \leq x < 2 \\ 6, & 2 < x \leq 4 \\ 0, & x = 2 \end{cases}$$

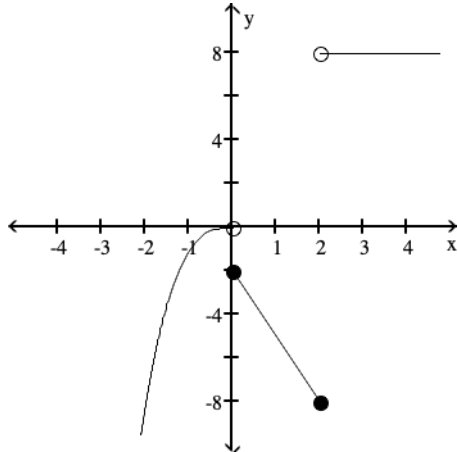


- A) No B) Yes

4) _____

From the graph of f , indicate the intervals on which f is continuous.

5)



5) _____

A) $(-\infty, 0), (0, 2), (2, \infty)$

B) $(-\infty, 0], [0, 2], [2, \infty)$

C) $(-\infty, 2], (2, \infty)$

D) $(-\infty, 0), [0, 2], (2, \infty)$

State whether the function is continuous at the indicated point. If it is not continuous, tell why.

6) State whether $f(t)$ is continuous at the point $t = 9$.

6) _____

$$f(t) = \begin{cases} 8t - 10 & \text{if } t \neq 9 \\ -17 & \text{if } t = 9 \end{cases}$$

A) Continuous

B) Not continuous; $f(9)$ does not exist

C) Not continuous; $\lim_{t \rightarrow 9} f(t)$ does not exist

D) Not continuous; $\lim_{t \rightarrow 9} f(t)$ and $f(9)$ exist but $\lim_{t \rightarrow 9} f(t) \neq f(9)$

Find a value for a so that the function $f(x)$ is continuous.

$$7) f(x) = \begin{cases} x^2 - 3, & x < 4 \\ 5ax, & x \geq 4 \end{cases}$$

7) _____

A) $a = \frac{13}{20}$

B) $a = 13$

C) $a = \frac{4}{5}$

D) $a = 7$

$$8) f(x) = \begin{cases} x^2 + x + a, & x < 3 \\ x^3, & x \geq 3 \end{cases}$$

8) _____

A) $a = 12$

B) $a = 39$

C) $a = 15$

D) $a = 27$

Find numbers a and b , or k , so that f is continuous at every point.

9)

9) _____

$$f(x) = \begin{cases} 3x + 4, & \text{if } x < -8 \\ kx + 2, & \text{if } x \geq -8 \end{cases}$$

A) $k = 5$

B) $k = -\frac{1}{4}$

C) $k = \frac{11}{4}$

D) $k = \frac{1}{4}$

Answer Key

Testname: CONTINUITY

- 1) D
- 2) C
- 3) B
- 4) A
- 5) D
- 6) D
- 7) A
- 8) C
- 9) C