

Calculus Practice: Continuous Functions 1b**Find the intervals on which each function is continuous.**

1)
$$f(x) = \begin{cases} -\frac{x}{2} + 1, & x < 0 \\ 2x + 6, & x \geq 0 \end{cases}$$

2)
$$f(x) = \frac{x^2}{2} - 2x + 2$$

3)
$$f(x) = \begin{cases} 2x - 5, & x \leq 2 \\ x^2 - 6x + 10, & x > 2 \end{cases}$$

4)
$$f(x) = \begin{cases} -x^2 + 6x - 8, & x \neq 1 \\ -5, & x = 1 \end{cases}$$

5)
$$f(x) = -x^3 - 11x^2 - 35x - 30$$

6)
$$f(x) = -x^3 + 2x^2 + 2$$

7)
$$f(x) = \begin{cases} 1, & x \neq -1 \\ -2, & x = -1 \end{cases}$$

8)
$$f(x) = \begin{cases} -\frac{x}{2} - \frac{1}{2}, & x \leq -2 \\ x + 4, & x > -2 \end{cases}$$

9)
$$f(x) = \cot(2x); [-\pi, \pi]$$

10)
$$f(x) = \cos \frac{1}{x}$$

$$11) f(x) = \frac{x^2}{2x-4}$$

$$12) f(x) = \begin{cases} 2x+3, & x \leq 3 \\ \frac{x}{2} + 3, & x > 3 \end{cases}$$

$$13) f(x) = \begin{cases} -x^2 + 2x - 1, & x \neq 0 \\ 1, & x = 0 \end{cases}$$

$$14) f(x) = \frac{x^2 - 3x + 2}{x - 1}$$

$$15) f(x) = x^3 - x^2 - 3$$

$$16) f(x) = -2\tan(x); [-\pi, \pi]$$

$$17) f(x) = x^3 - 4x^2 + 2$$

$$18) f(x) = x^2 + 8x + 10$$

$$19) f(x) = \sin \frac{1}{x}$$

$$20) f(x) = \cos \frac{1}{x - \pi}$$

Calculus Practice: Continuous Functions 1b

Find the intervals on which each function is continuous.

$$1) f(x) = \begin{cases} -\frac{x}{2} + 1, & x < 0 \\ 2x + 6, & x \geq 0 \end{cases}$$

$(-\infty, 0), [0, \infty)$

$$2) f(x) = \frac{x^2}{2} - 2x + 2$$

$(-\infty, \infty)$

$$3) f(x) = \begin{cases} 2x - 5, & x \leq 2 \\ x^2 - 6x + 10, & x > 2 \end{cases}$$

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

$$4) f(x) = \begin{cases} -x^2 + 6x - 8, & x \neq 1 \\ -5, & x = 1 \end{cases}$$

$(-\infty, 1), (1, \infty)$

$$5) f(x) = -x^3 - 11x^2 - 35x - 30$$

$(-\infty, \infty)$

$$6) f(x) = -x^3 + 2x^2 + 2$$

$(-\infty, \infty)$

$$7) f(x) = \begin{cases} 1, & x \neq -1 \\ -2, & x = -1 \end{cases}$$

$(-\infty, -1), (-1, \infty)$

$$8) f(x) = \begin{cases} -\frac{x}{2} - \frac{1}{2}, & x \leq -2 \\ x + 4, & x > -2 \end{cases}$$

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

$$9) f(x) = \cot(2x); [-\pi, \pi]$$

$(-\pi, -\frac{\pi}{2}), (-\frac{\pi}{2}, 0), (0, \frac{\pi}{2}), (\frac{\pi}{2}, \pi)$

$$10) f(x) = \cos \frac{1}{x}$$

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

$$11) f(x) = \frac{x^2}{2x-4}$$

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

$$12) f(x) = \begin{cases} 2x+3, & x \leq 3 \\ \frac{x}{2} + 3, & x > 3 \end{cases}$$

$(-\infty, 3], (3, \infty)$

$$13) f(x) = \begin{cases} -x^2 + 2x - 1, & x \neq 0 \\ 1, & x = 0 \end{cases}$$

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

$$14) f(x) = \frac{x^2 - 3x + 2}{x-1}$$

$(-\infty, 1), (1, \infty)$

$$15) f(x) = x^3 - x^2 - 3$$

$(-\infty, \infty)$

$$16) f(x) = -2\tan(x); [-\pi, \pi]$$

$[-\pi, -\frac{\pi}{2}), (-\frac{\pi}{2}, \frac{\pi}{2}), (\frac{\pi}{2}, \pi]$

$$17) f(x) = x^3 - 4x^2 + 2$$

$(-\infty, \infty)$

$$18) f(x) = x^2 + 8x + 10$$

$(-\infty, \infty)$

$$19) f(x) = \sin \frac{1}{x}$$

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

$$20) f(x) = \cos \frac{1}{x-\pi}$$

$(-\infty, \pi), (\pi, \infty)$