

$$3.11. f(x) = \begin{cases} \sin x, & x < 0, \\ x, & 0 \leq x \leq 2, \\ 0, & x > 2. \end{cases}$$

$$3.12. f(x) = \begin{cases} \cos x, & x \leq \pi/2, \\ 0, & \pi/2 < x < \pi, \\ 2, & x \geq \pi. \end{cases}$$

$$3.13. f(x) = \begin{cases} x-1, & x \leq 0, \\ x^2, & 0 < x < 2, \\ 2x, & x \geq 2. \end{cases}$$

$$3.14. f(x) = \begin{cases} x+1, & x < 0, \\ x^2-1, & 0 \leq x < 1, \\ -x, & x \geq 1. \end{cases}$$

$$3.15. f(x) = \begin{cases} -x, & x < 0, \\ x^2+1, & 0 \leq x < 2, \\ x+1, & x \geq 2. \end{cases}$$

$$3.16. f(x) = \begin{cases} x+3, & x \leq 0, \\ 1, & 0 < x \leq 2, \\ x^2-2, & x > 2. \end{cases}$$

$$3.17. f(x) = \begin{cases} x-1, & x < 0, \\ \sin x, & 0 \leq x < \pi, \\ 3, & x \geq \pi. \end{cases}$$

$$3.18. f(x) = \begin{cases} -x+1, & x < -1, \\ x^2+1, & -1 \leq x \leq 2, \\ 2x, & x > 2. \end{cases}$$

$$3.19. f(x) = \begin{cases} 1, & x \leq 0, \\ 2^x, & 0 < x \leq 2, \\ x+3, & x > 2. \end{cases}$$

$$3.20. f(x) = \begin{cases} -x+2, & x \leq -2, \\ x^3, & -2 < x \leq 1, \\ 2, & x > 1. \end{cases}$$

$$3.21. f(x) = \begin{cases} 3x+4, & x \leq -1, \\ x^2-2, & -1 < x < 2, \\ x, & x \geq 2. \end{cases}$$

$$3.22. f(x) = \begin{cases} x, & x \leq 1, \\ (x-2)^2, & 1 < x < 3, \\ -x+6, & x \geq 3. \end{cases}$$

$$3.23. f(x) = \begin{cases} x-1, & x < 1, \\ x^2+2, & 1 \leq x \leq 2, \\ -2x, & x > 2. \end{cases}$$

$$3.24. f(x) = \begin{cases} x^3, & x < -1, \\ x - 1, & -1 \leq x \leq 3, \\ -x + 5, & x > 3. \end{cases}$$

$$3.25. f(x) = \begin{cases} x, & x < -2, \\ -x + 1, & -2 \leq x \leq 1, \\ x^2 - 1, & x > 1. \end{cases}$$

$$3.26. f(x) = \begin{cases} x + 3, & x \leq 0, \\ -x^2 + 4, & 0 < x < 2, \\ x - 2, & x \geq 2. \end{cases}$$

$$3.27. f(x) = \begin{cases} 0, & x \leq -1, \\ x^2 - 1, & -1 < x \leq 2, \\ 2x, & x > 2. \end{cases}$$

$$3.28. f(x) = \begin{cases} -1, & x < 0, \\ \cos x, & 0 \leq x \leq \pi, \\ 1 - x, & x > \pi. \end{cases}$$

$$3.29. f(x) = \begin{cases} 2, & x < -1, \\ 1 - x, & -1 \leq x \leq 1, \\ \ln x, & x > 1. \end{cases}$$

$$3.30. f(x) = \begin{cases} -x, & x \leq 0, \\ x^3, & 0 < x \leq 2, \\ x + 4, & x > 2. \end{cases}$$

4. Исследовать данные функции на непрерывность в указанных точках.

$$4.1. f(x) = 2^{1/(x-3)} + 1; x_1 = 3, x_2 = 4.$$

$$4.2. f(x) = 5^{1/(x-3)} - 1; x_1 = 3, x_2 = 4.$$

$$4.3. f(x) = (x + 7)/(x - 2); x_1 = 2, x_2 = 3.$$

$$4.4. f(x) = (x - 5)/(x + 3); x_1 = -2, x_2 = -3.$$

$$4.5. f(x) = 4^{1/(3-x)} + 2; x_1 = 2, x_2 = 3.$$

$$4.6. f(x) = 9^{1/(2-x)}; x_1 = 0, x_2 = 2.$$

$$4.7. f(x) = 2^{1/(x-5)} + 1; x_1 = 4, x_2 = 5.$$

$$4.8. f(x) = 5^{1/(x-4)} - 2; x_1 = 3, x_2 = 4.$$

$$4.9. f(x) = 6^{1/(x-3)} + 3; x_1 = 3, x_2 = 4.$$

$$4.10. f(x) = 7^{1/(5-x)} + 1; x_1 = 4, x_2 = 5.$$

$$4.11. f(x) = (x - 3)(x + 4); x_1 = -5, x_2 = -4.$$

$$4.12. f(x) = (x + 5)/(x - 2); x_1 = 3, x_2 = 2.$$

$$4.13. f(x) = 5^{2/(x-3)}; x_1 = 3, x_2 = 4.$$

$$4.14. f(x) = 4^{2/(x-1)} - 3; x_1 = 1, x_2 = 2.$$

$$4.15. f(x) = 2^{5/(1-x)} - 1; x_1 = 0, x_2 = 1.$$

$$4.16. f(x) = 8^{4/(x-2)} - 1; x_1 = 2, x_2 = 3.$$

$$4.17. f(x) = 5^{4/(3-x)} + 1; x_1 = 2, x_2 = 3.$$

$$4.18. f(x) = 3x/(x - 4); x_1 = 4, x_2 = 5.$$