

Kerry Ojakian's MTH 31 Class
Class Assignment #5

For each function determine the point(s), if any, at which it is discontinuous. Classify any discontinuity as jump, removable, infinite, or undefined-region.

1. $f(x) = 3x^5 + x^2 - 41$

2. $g(x) = \frac{3}{x+4}$

3. $h(x) = \frac{2}{\sqrt{x}}$

4. $f(t) = 4e^t + t^7$

5. $f(u) = \ln(u+5)$

6. $h(u) = 4 + \sin(u^3)$

7. $A(x) = |x|$

8. $f(x) = \begin{cases} x^4 & \text{if } x < -1 \\ x^6 & \text{if } x \geq -1 \end{cases}$

9. $h(x) = \begin{cases} x^4 & \text{if } x < 0 \\ 1 - x^4 & \text{if } x \geq 0 \end{cases}$

For each function determine the point(s), if any, at which it is discontinuous. At any such points, determine if it is left or right continuous. List the largest intervals on which the function is continuous

$$10. f(x) = \frac{4}{x^2}$$

$$11. f(x) = \begin{cases} x^4 & \text{if } x \leq 2 \\ 4x & \text{if } x > 2 \end{cases}$$

$$12. f(x) = \begin{cases} 2x - 4 & \text{if } x \leq 5 \\ 6 & \text{if } x > 5 \end{cases}$$

$$13. f(x) = \begin{cases} -x & \text{if } x < 0 \\ -1 & \text{if } 0 \leq x \leq 2 \\ -x & \text{if } x \geq 2 \end{cases}$$

$$14. g(x) = \begin{cases} 150x - 13 & \text{if } x \neq 5 \\ 0 & \text{if } x = 5 \end{cases}$$

Final Exercises.

15. Section 2.4 (p. 194): Exercise 154, 155, 157