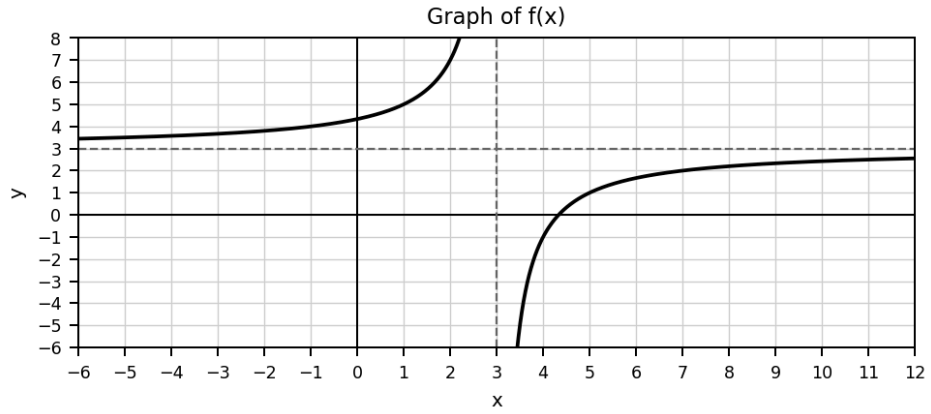
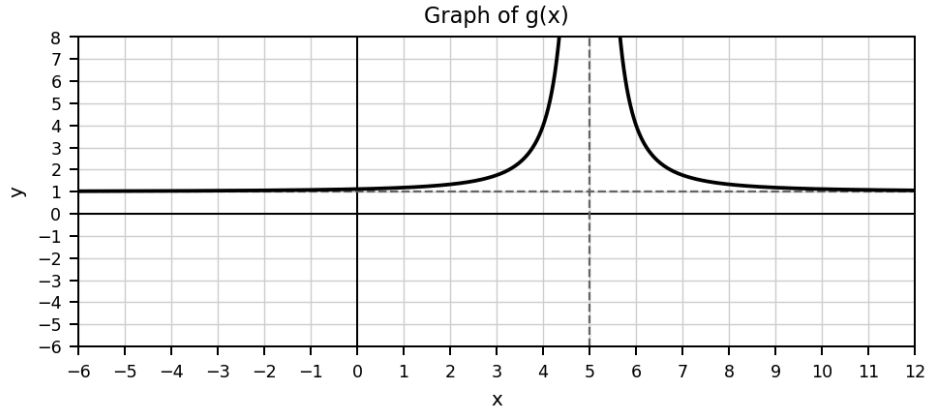
Rational Functions | Review A

Name: _____ **Date:** _____ **Period:** _____

1. Write left- and right-end-behavior limit statements.



2. Write left and right end-behavior limit statements.



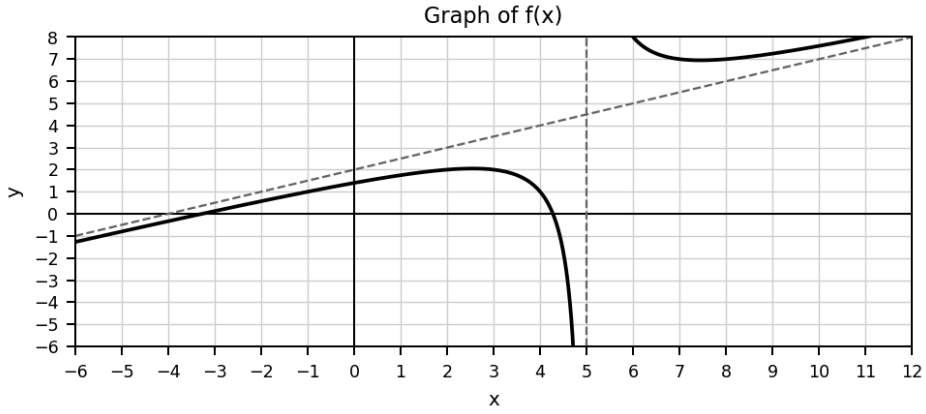
3. Write both end-behavior limits for f(x) = $\frac{4x^2-3x+2}{5x^2+2x+9}$

4. Write both end-behavior limits for f(x) = $\frac{3x(x-4)}{(x+3)^2(x-2)}$

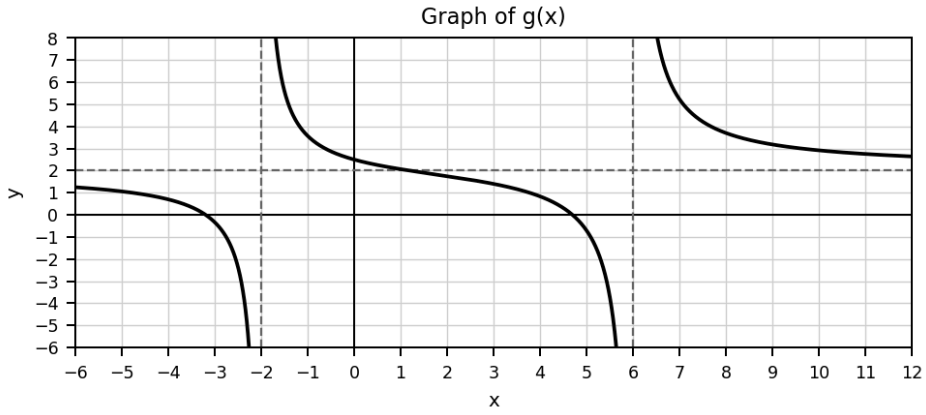
5. Write both end-behavior limits for f(x) = $\frac{-3x^4+2x^2+2x-5}{7x^2+3x+4}$

6. Write both end-behavior limits for f(x) = $\frac{5(x-2)^2(x+4)}{(3x+2)^2}$

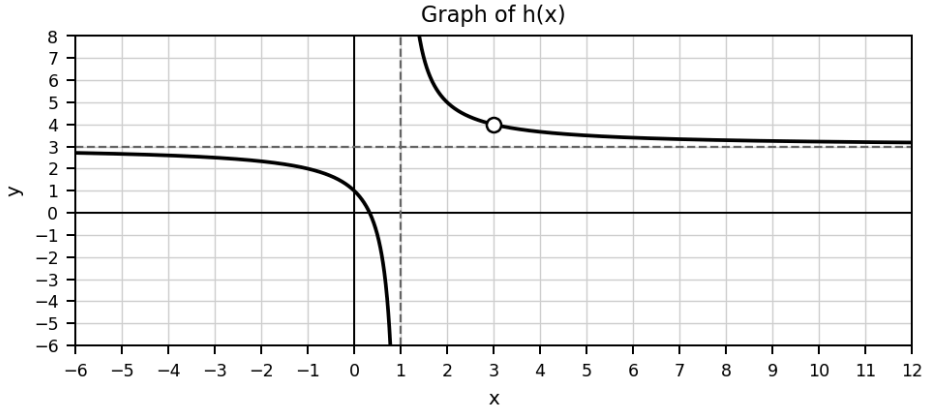
7. Input values decrease without bound. Write a limit statement.



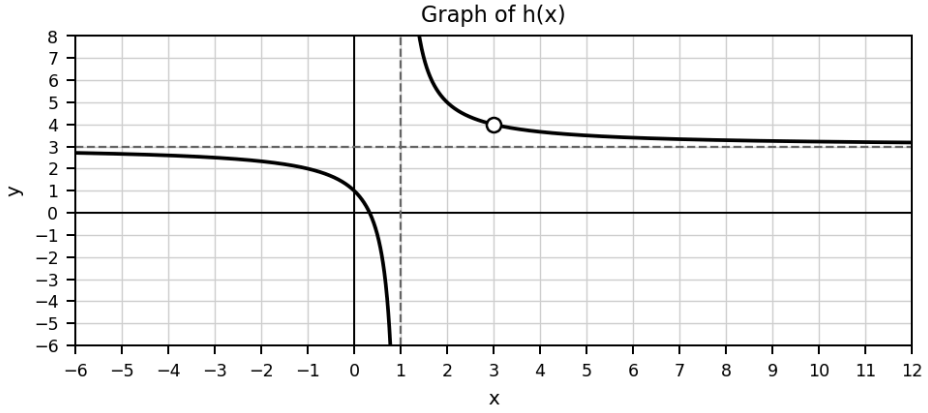
8. Input values increase without bound. Write a limit statement.



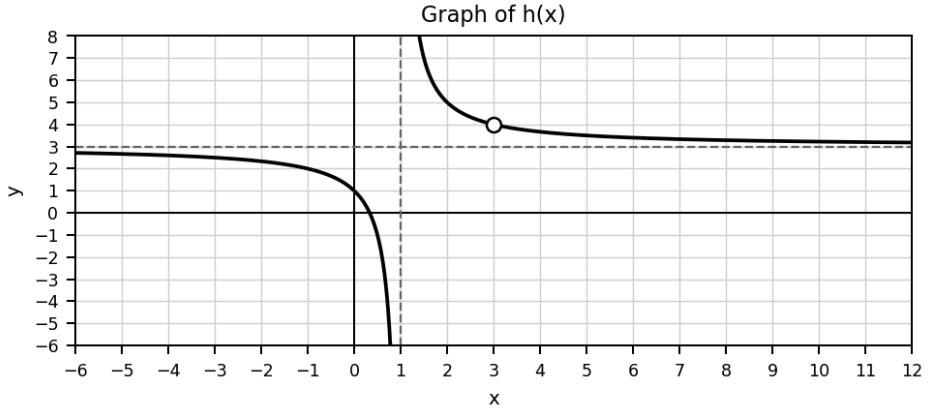
9. Use the graph to evaluate $\lim_{x \to 1^-} h(x)$.



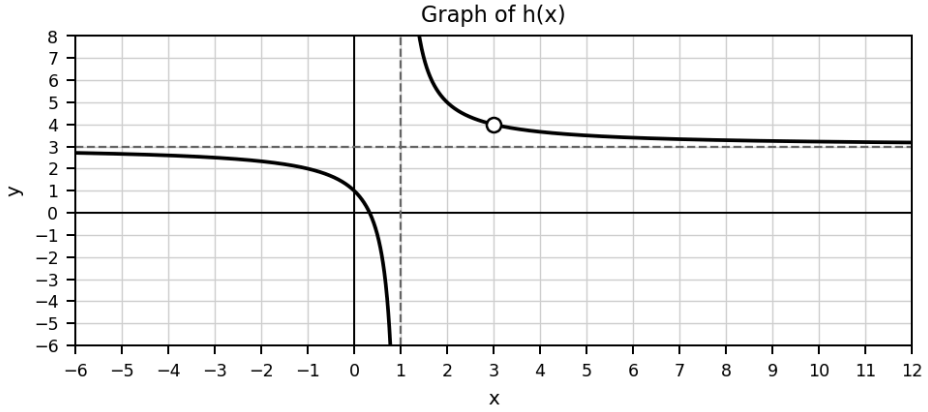
10. Use the graph to evaluate $\lim_{x \to 1^+} h(x)$.



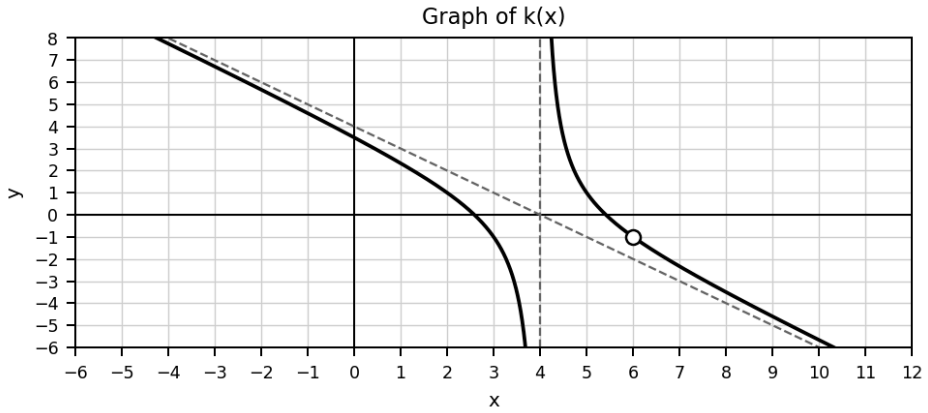
11. Use the graph to evaluate $\lim_{x \to 3^-} h(x)$.



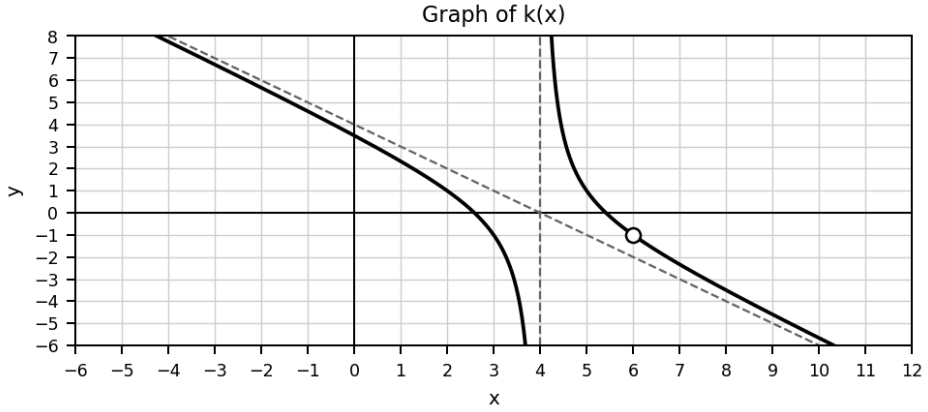
12. Use the graph to evaluate $\lim_{x \to 3^+} h(x)$.



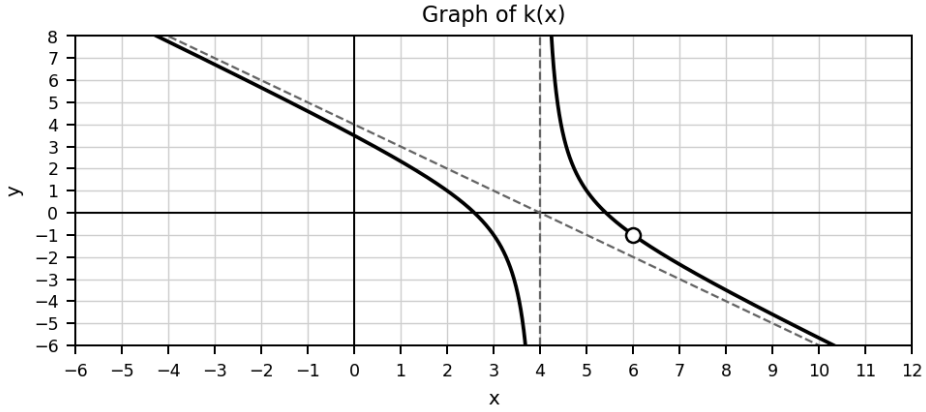
13. Use the graph to evaluate $\lim_{x \to 6^-} k(x)$.



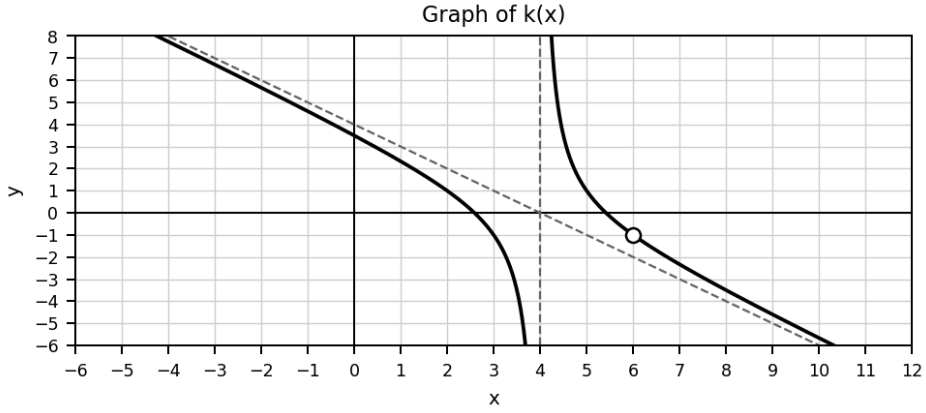
14. Use the graph to evaluate $\lim_{x \to 4^+} k(x)$.



15. Use the graph to evaluate $\lim_{x\to-\infty} k(x)$.



16. Use the graph to evaluate $\lim_{x\to\infty} k(x)$.



17. Write left and right limit statements as x approaches 2 for $f(x) = \frac{(x-2)(x+7)}{(x-2)(x+3)}$

18. Write left and right limit statements as x approaches 2 for $f(x) = \frac{(x-3)(x-6)}{(x-2)(x+4)}$

19. Write left and right limit statements as x approaches 2 for f(x) = $\frac{-3(x+4)(x+2)}{(x-2)^2}$

20. Identify all x-values of holes and vertical asymptotes: f(x) = $\frac{(x+4)(x-3)}{(x+4)^2(x-3)}$

21. Identify all x-values of holes and vertical asymptotes: f(x) = $\frac{(x+8)(x+3)^3}{(x+2)(x+3)^2}$

22. Identify all x-values of holes and vertical asymptotes: f(x) = $\frac{x^3-2x^2}{x^2+6x+9}$

23. Solve in interval notation: $\frac{x-4}{x+3} \leq 0$

24. Solve in interval notation: $\frac{(x-2)^2(x+4)}{x+2} > 0$

25. Solve in interval notation: $\frac{x^2-2x-15}{x^2} \geq 0$

26. Solve in interval notation: $\frac{-3x(x-2)^2}{(x+3)(x-5)^2} < 0$