



Calculus 1 Prep - CSM PRESS

Essential Functions – Summer 2025

KENNESAW STATE
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1. Find the equation of the line with slope -2 and containing the point $(-3,5)$.

2. Find the equation of the line containing the points $(-2,1)$ and $(4,3)$.

3. Find the zeros, horizontal asymptotes, vertical asymptotes, and holes for the following functions.

a. $f(x) = \frac{3x^2 - 12}{x^2 + 2x - 8}$

b. $g(x) = \frac{x+1}{3x+1}$

c. $h(x) = \frac{x+1}{x^2 - 1}$

d. $k(x) = \frac{x+1}{x^2 + 1}$

4. Rewrite the expressions as sums/differences of constants and power functions.

a. $F(x) = \frac{x^2\sqrt{x}+2x}{x}$

b. $g(x) = \frac{\sqrt[3]{x}-5+x^2}{7x^3}$

5. Let $g(x) = \frac{x+1}{3x+1}$ and $h(x) = \frac{x+1}{x^2-1}$. Find each of the following. Simplify your answers.

a. $h(-5) =$

b. $g(x + h) =$

c. $(g \circ h)(x) =$