

1. Find f^{-1} if f is given as

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

2. Solve

$$\lim_{x \rightarrow 3} \frac{x^2 - 5x + 6}{x^2 + 3x - 18}.$$

3. Compute f' and f'' for

$$f(x) = e^{x^2}.$$

4. Compute

$$\int_0^4 \frac{x^2}{3} + x + 1 \, dx.$$

5. Find a solution to

$$y' = y^2$$

satisfying $y(0) = 2$.

6. Find all solutions to

$$y'' + 4y' + 4y = 0.$$