

**ALGEBRA 2**  
**PROBLEM SET 03**

DUE DATE: JANUARY 29, 2024

**Question 1.** Simplify the following rational expressions

(a)  $\frac{x+1}{x+2} + \frac{x+2}{x-2}$

(b)  $\frac{x+1}{x+2} \cdot \frac{x+2}{x-2}$

(c)  $\frac{x+1}{x+2} \div \frac{x+2}{x-2}$

(d)  $\frac{1}{x-1} + \frac{2}{x+1}$

(e)  $\frac{3}{x+1} \cdot \frac{4}{x-1}$

(f)  $\frac{\frac{1}{x-1} + \frac{2}{x+1}}{\frac{3}{x+1} \cdot \frac{4}{x-1}}$

(g)  $\frac{3}{x(x+1)} + \frac{2}{x+1} - \frac{1}{(x+1)^2}$

**Question 2.** Combine the fractions

(a)  $\frac{3x}{x+1} + 2$

(b)  $\frac{3}{x+1} + \frac{2}{x-1}$