

YOUR NAME: \_\_\_\_\_

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. HAPPY HALLOWEEN!!

1. Subtract and simplify  $\frac{x^2 - 3x}{3x^2 - 27} - \frac{1}{x - 3}$ .

2. Simplify the complex fraction  $\frac{\frac{x+4}{x+3} - \frac{4}{x}}{\frac{x+3}{x} - \frac{6}{x+3}}$ .

3. City A and City B have equal populations. Suppose  $\frac{3}{5}$  of the school-age people in A are male and  $\frac{3}{7}$  of the school-age people in B are male. Suppose also that  $\frac{2}{3}$  of all school-age kids of A actually go to school and that  $\frac{4}{5}$  of all school-age kids of B actually go to school. If all male school-age children of both cities go to school, what fraction of the entire school-age population that attend school are male students?