Quiz -Rational Expressions and Equations **Name:**
A2 ***(25 points)***

Some of the expressions below are already simplified and some can be simplified. <u>Simplify</u> all those that can be simplified. <u>Circle</u> those that are already simplified. (1 pt each)

1) $\dfrac{x+11}{11+x}$

2) $\dfrac{2x+7}{2x+21}$

3) $\dfrac{x+8}{x-8}$

4) $\dfrac{5(x+6)}{(x+6)}$

5) $\dfrac{x+9}{x^2+7x-18}$

6) $\dfrac{x+4}{2x}$

7) $\dfrac{x^2+7x}{x^2}$

8) $\dfrac{x^2-16}{5x+20}$

Perform the operation indicated and fully simplify each expression. (3 pts each)

9) $\dfrac{3(x-4)(x-2)(x+5)}{6(x-4)(x+5)}$

10) $\dfrac{15x^2y}{x} \cdot \dfrac{2}{10y}$

11) $\dfrac{5x+10}{x+3} \cdot \dfrac{x^2-9}{x+2}$

12) $\dfrac{x^2-25}{2x-2} \cdot \dfrac{x^2-1}{x^2+6x+5}$

13) $\dfrac{-2x}{x+3} \div \dfrac{6}{x+3}$

14) In the problem below, a student was subtracting two rational expressions and simplifying. Look at the worked out problem below. There are exactly <u>two mistakes</u>. **Circle** each mistake and **explain** clearly and fully what mistakes were made. (2 pts)

<u>Describe Mistakes</u>:

step 1: $\dfrac{3}{x-5}-\dfrac{2}{x}$

step 2: $\dfrac{3x}{(x-5)x}-\dfrac{2(x-5)}{x(x-5)}$

step 3: $\dfrac{3x}{x(x-5)}-\dfrac{2x-10}{x(x-5)}$

step 4: $\dfrac{3x-2x-10}{x(x-5)}$

step 5: $\dfrac{x-10}{x(x-5)}$

step 6: $\dfrac{-10}{(x-5)}$

Bonus (2 pts)

Simplify $\dfrac{2x^2-9x-5}{x+2}\cdot\dfrac{x^2-4}{2x^2-3x-2}\div\dfrac{25-x^2}{x+5}$