## EXAM 4 - MATH 102 YOUR NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Solve the rational equation 
$$\frac{30-4x}{x^2-9} + \frac{7}{x+3} = 2.$$

2. (a) Perform the operations and simplify  $\sqrt[5]{a^2}(\sqrt[5]{a^3} - \sqrt[5]{a^{13}})$ .

(b) Rationalize and simplify: 
$$\frac{2\sqrt{3}-5}{3+\sqrt{3}}$$
.

3. Solve the radical equation  $\sqrt[3]{2x^2 + x - 2} = x$ .

- 4. Two positive numbers x, y differ by 11 and their square roots differ by 1.
  - (a) Write two equations reflecting the statements in the problem.
  - (b) Solve the equations to find x, y (**Do NOT guess**.)

5. Solve the rational exponent equation  $(7x + 3)^{-5/2} = \frac{1}{32}$ .