Books and notes (in any form) are not allowed. You may use a calculator (**CALCULATOR NUMBER:** _____).
Show all work for full credit and clearly indicate your answers. Good Luck!

The following formula may or may not be helpful. $(x - h)^2 + (y - k)^2 = r^2$

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1. (2 pts) Determine whether the following equation has symmetry with respect to the origin. [You must show work and clearly state your conclusion.]

$$y = \frac{x}{x^2 + 1}$$

2. (2 pts) Write the standard form of the equation of the circle with center $(0, -7)$ and radius 8.

3. (3 pts) Solve the following equation for x. If there is no solution or infinitely many solutions, clearly state so.

$3x - 4 = -3(x + 2) + 5$

4. (4 pts) Solve the following equation for x. If there is no solution or infinitely many solutions, clearly state so.

$$\frac{x}{x-2} - \frac{2}{x-2} - 6 = 0$$

5. (4 pts) 76 feet of fencing will be used to enclose a rectangular animal pen. The width of the pen must be 12 feet. See the figure below. Complete the steps below to find the length of the pen.

(**a**). Write down a mathematical model for the problem. [You must write down a mathematical model for full credit.] [Hint: The amount of fencing is the perimeter.]

(**b**). Solve the mathematical model, to find the length of the pen.

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