EXAM 2 - MATH 111 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. The figures below show the absolute value function y = |x| and one of its transforms y = f(x).



Fill in the following chart with the transformations needed to obtain y = f(x) starting with y = |x|.



2. (a) Solve the absolute value equation

$$3|7x - 10| + 17 = 92.$$

(b) Find a formula for
$$f^{-1}(x)$$
 if $f(x) = \frac{7x}{1-2x}$.

3. Find an equation for the line ℓ that passes through the point (32, -1) and is perpendicular to the line k that passes through the points (-52, 7) and (8, -33).

- 4. A friend of yours is trying to decide which job to take. McRichard's is offering \$15.70 per hour and a bonus of 3 cents per burger served. Cindy's, on the other hand, offers only \$13.50 per hour, but a better bonus of 5 cents per burger served.
 - (a) Write an equation for the total hourly compensation M(x) at McRichard's of an employee serving x burgers per hour.
 - (b) Write an equation for the total hourly compensation C(x) at Cindy's of an employee serving x burgers per hour.
 - (c) Write and solve an inequality to advise under which conditions it would be more profitable to work at Cindy's. Give a short explanation of your answer in English.

5. (a) Write an equation in standard form of the parabola described by the general form

$$f(x) = 2x^2 - 20x + 32.$$

(b) Write an equation for the parabola shown in the picture and leave your answer in general form.

