MS 100 College Algebra test five Name:

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1. For a parabola with a vertex at (−3, −16) and a focus $p=\frac{1}{4}$:

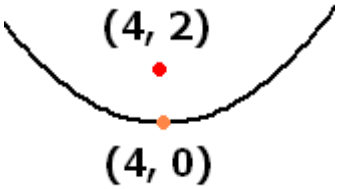
   a. Find the vertex form $(y-k)=\left(\frac{1}{4p}\right)(x-h)^2$ _____

   b. Find the quadratic form y = ax² + bx + c _____

   c. Find the y-intercept. _____

   d. Find the x-intercepts. _____ _____

2. Find the vertex form $(y-k)=\left(\frac{1}{4p}\right)(x-h)^2$ for a parabola with a vertex and focus as indicated in the diagram on the right:



3. For a parabola with a vertex (3, −256) and a point on the parabola (17, −60)

   a. Find the vertex form $(y-k)=\left(\frac{1}{4p}\right)(x-h)^2$

   b. Find the quadratic form y = ax² + bx + c _____

   c. Find the y-intercept. _____

   d. Find the x-intercepts. _____ _____

4. For the rational function $r(x)=\frac{(5x^2-20)}{(x^2-9)}$ determine...

   a. The graph of r(x). Sketch the graph on the back. You are, of course, free to use the computer based tools of your choice – either Qalculate! or OpenOffice.org.

   b. The y-intercept: _____

   c. The x-intercepts: _____ _____

   d. The vertical asymptotes: _____ _____

   e. The horizontal asymptote: _____

   f. Is r(x) a function? _____

   g. Is $r^{-1}(x)$ a function? _____