Math 156 PRECALCULUS
Fall 2015

Quiz 6 – Version A

Thursday, October 22, 2015

Name:_____

This quiz has 6 problems worth a total of 30 points. It is TWO SIDED.

1. (5 points) Let $f(x) = 5x^2 + 2x - 1$.

   (a) Express f in standard form.

   (b) Find the vertex of f.

2. (6 points) Given $f(x) = -4(x+5)^2 + 9$, a quadratic function in standard form, answer the questions below.

   (a) Find the y-intercept(s) of f, or state that none exist.

   (b) Find the x-intercept(s) of f, or state that none exist.

   (c) Find the range of $f(x)$.

3. (6 points) Let $g(x) = \frac{8x^3}{x^3+6x^2+8x}$.

   (a) Find all horizontal asymptotes, if any exist.

   (b) Find all vertical asymptotes, if any exist.

   (c) Find all y-intercepts, if any exist.

4. (4 points) Solve the inequality $\frac{x-3}{2x+5} \geq 1$.

5. (5 points) For $P(x) = \frac{-1}{6}(x+2)(x-1)^2(x-3)$. Sketch the graph of $P(x)$. Label any x- or y-intercepts and exhibit the proper end behavior.

6. (4 points) Find the quotient, $Q(x)$, and remainder, $R(x)$, of $\frac{x^4+4x^3-8x^2+15}{x^2-3}$ using long division. **Make sure you identify them!**