Math 121C
Fall 2009
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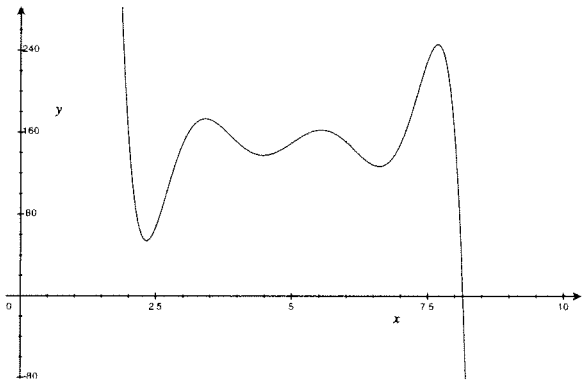
Applied Calculus I
Quiz 2
Write your name on this quiz



1. Pictured above is the graph of a polynomial $p(x)$.

   (a) Can the degree of $p(x)$ be 5? Explain your answer.

   No, because the graph turns 6 times, so the degree ≥ 7

   (b) Can the degree of $p(x)$ be 8? Explain your answer.

   No, b/c the graph looks like ↘↗ so degree is odd.

   (c) Can the degree of $p(x)$ be 17? Explain your answer.

   Yes b/c degree ≥ 7 and $17 \geq 7$.

2. Sketch the graph of the rational function $\dfrac{2x+1}{x-3}$.

Vert. asymptote: $x = 3$

Horiz. asymp: $y = \frac{2}{1} = 2$

$\frac{2 \cdot 0 + 1}{0 - 3} = -\frac{1}{3}$ so the graph passes thru $(0, -\frac{1}{3})$