

## Relative Extrema

Now, listen, my children and you shall hear  
Of the relative extrema I hold so dear.  
When  $f'$  is zero or undefined  
A max or min you have in mind

If at first you increase, then go down,  
A relative maximum you have found.  
A min becomes apparent when  
The function goes back up again.

Once in a while you'll feel betrayed,  
Your guess at a max or min delayed.  
A sharp point comes across your path;  
 $f'$  undefined has earned your wrath!

A critical point does not guarantee  
A maximum or min, you see.  
An increase may be followed by  
Another increase....why, oh why?

Inflection points must be considered.  
In many functions they are littered.  
To ensure you have located each  
 $f''$  double-prime steps in the breach.

A triple threat is this new prime.  
For max and min it saves us time.  
A backwards rule, said with chagrin,  
That neg means max and pos means min.

The double prime becomes the hero  
When we make it equal to zero.  
We've found the points inflectionary.  
Success is sweet, (confectionary?).

Before you grab your hats and coats,  
Be sure to check for asymptotes.  
When all above have passed your test  
You've earned the right to have a rest.