**The Cubic Formula (Euler)**

You consider the depressed cubic equation *x*3 = *mx* + *n*.

(I) Let  . Cube both sides:



(II) Equate:

 with .

That is,  and *n* = *p* + *q*.

(III) From , you get *m*3 = 27*pq*, i.e.,  .

From *n* = *p* + *q*, you get *n*2 = *p*2 + 2*pq* + *q*2.

(IV) This yields:



(V) Take the positive square root. (The other case will yield the same result.)

You have the system of equations:

 .

(VI) Adding and subtracting in (V) gives you:





(VII) And finally:

