

M192: ASSIGNMENT THREE

Due: Tuesday, October 9, 2007.

Prove the following by induction.

Question One

Theorem: For every natural number n , $2^0 + 2^1 + \cdots + 2^n = 2^{n+1} - 1$.

Question Two

Theorem: For every natural number $n \geq 5$, $2^n > n^2$.

Question Three

Theorem: For all $n \geq 3$, if n distinct points on a circle are connected in consecutive order by straight lines, then the interior angles of the resulting polygon add up to $(n - 2)180^\circ$.