$= x_1 + iy_1$, $z_2 =$
$x_2 + iy_2$ is obtained by expanding out the product of the binomials and simplifying using the rule <formula> :
<formula>
As a consequence of the angle sum formulas of trigonometry , if z_1 and z_2 have polar coordinates (r_1 , $?_1$) , (r_2 , $?_2$) , then their product z_1z_2 has polar coordinates equal to (r_1r_2 , $?_1 + ?_2$) .
Consider the right triangle in the complex plane which has 0 , 1 , $1 + ix / n$ as vertices . For large values of n , the triangle is almost a circular sector with a radius of 1 and a small central angle equal to x / n radians . $1 + ix / n$ may then be approximated by the number with polar coordinates (1 , x / n) . So , in the limit as n approaches infinity , $(1 + ix / n)^n$ approaches $(1 , x / n)^n$
$= (1^n , nx / n) =$