## VIII. SUM TO PRODUCT



$$Sin(x+y) = Sin x cos y + cos x sin y$$
  
 $Sin(x-y) = Sin x cos y - cos x sin y$ 

Subtract: 32) 
$$sin(x+y) - sin(x-y) = 2cosxsiny$$

$$Cos(x+y) = cos x cos y - sinx sin y$$
  
 $cos(x-y) = cos x cos y + sinx sin y$ 

Add: 33) 
$$cos(x+y) + cos(x-y) = 2cos \times cos y$$

Subtract: 
$$34)$$
  $\cos(x+y) - \cos(x-y) = -2 \sin x \sin y$ 

Note: If 
$$x > y$$
, then
$$(x+y)+(x-y)=2x$$

$$(x+y)-(x-y)=2y$$