Consider a right angled triangle with an acute angle of *θ*.  Let the base of the triangle be of length 2.



Find the height of the triangle in terms of *t*, where *t* = tan *θ*.

Now imagine a line in the triangle which forms an isosceles triangle with two angles equal to *θ*.



Use this diagram to prove the double angle formula, where *t* = tan *θ*:

$\tan(2θ=\frac{2t}{1-t^{2}})$, $\sin(2θ=\frac{2t}{1+t^{2}})$, $\cos(2θ=\frac{1-t^{2}}{1+t^{2}})$