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

Shape

Description automatically generated

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*.

Diagram

Description automatically generated with medium confidence

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

, ,