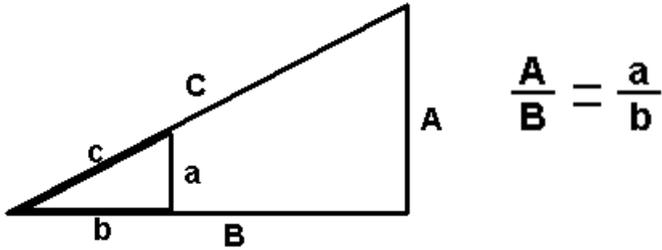


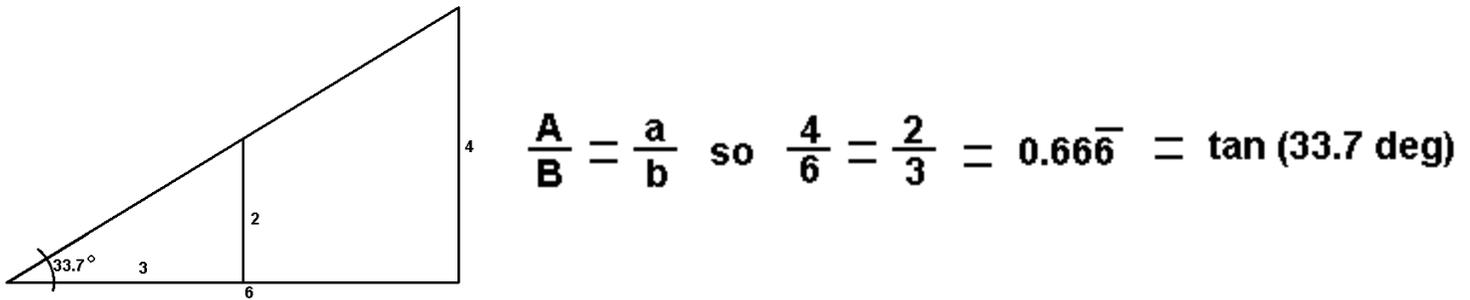
## Using Tangents to Calculate the Maximum Altitude of a Rocket Flight

The study of Trigonometry, with all its interrelationships and intricacies can very quickly become complex and difficult, but using the definition of tangents to calculate the maximum height of a rocket flight is not at all difficult to understand and use.

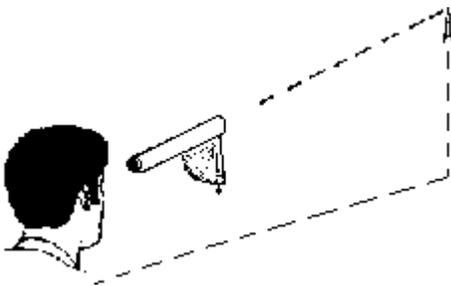
The principle is an extension of the properties of similar triangles, which is discussed in the previous background paper. Just as the ratios of corresponding sides of similar triangles are equal,



the corresponding angles of similar triangles are also equal.



The result is that the ratios of the opposite side to the adjacent side of any right triangle with the same index angle is the same and that ratio is called the Tangent of that angle.



Finally, to calculate the altitude of the rocket; measure the index angle by looking at the rocket's maximum height through your altitude tracker and reading the angle under the string on the protractor card, look up the tangent ratio for that angle, and multiply the tangent by the ground distance to the launch pad.