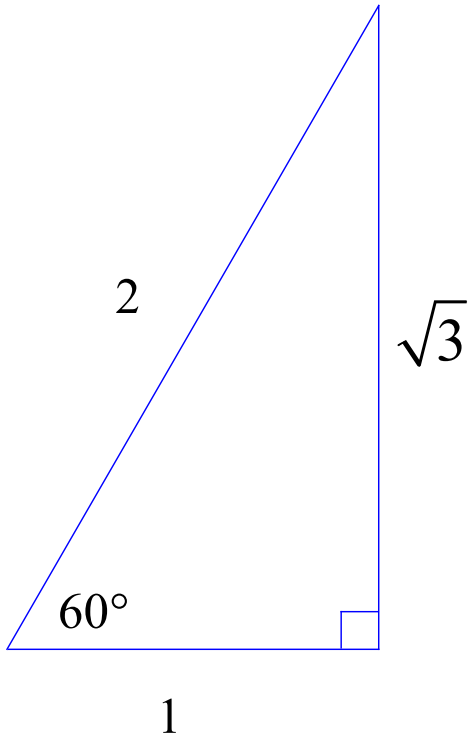
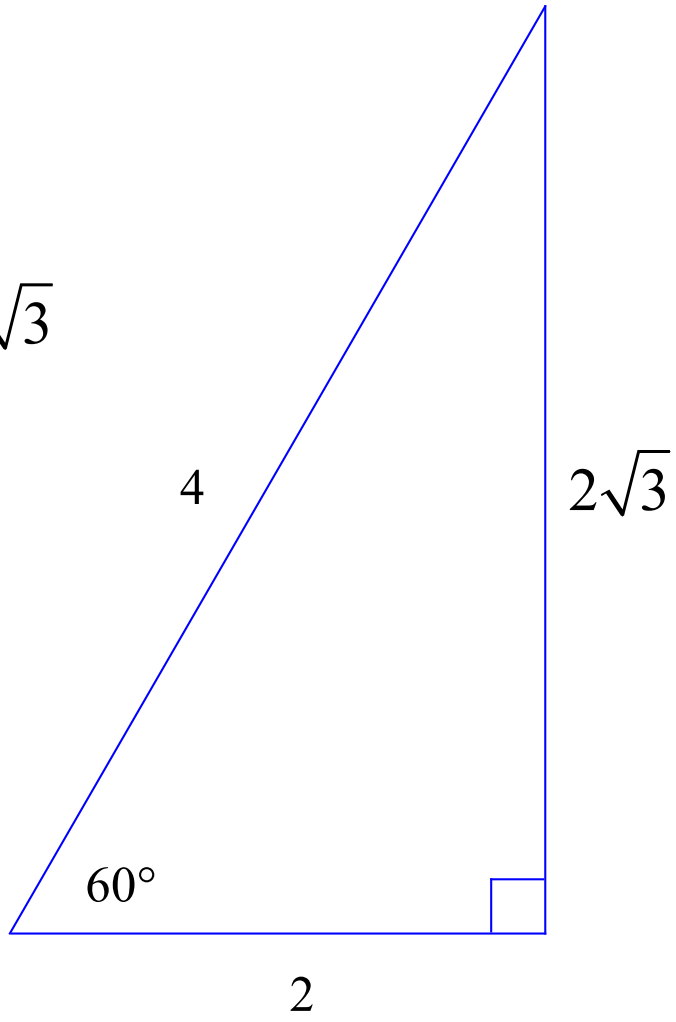
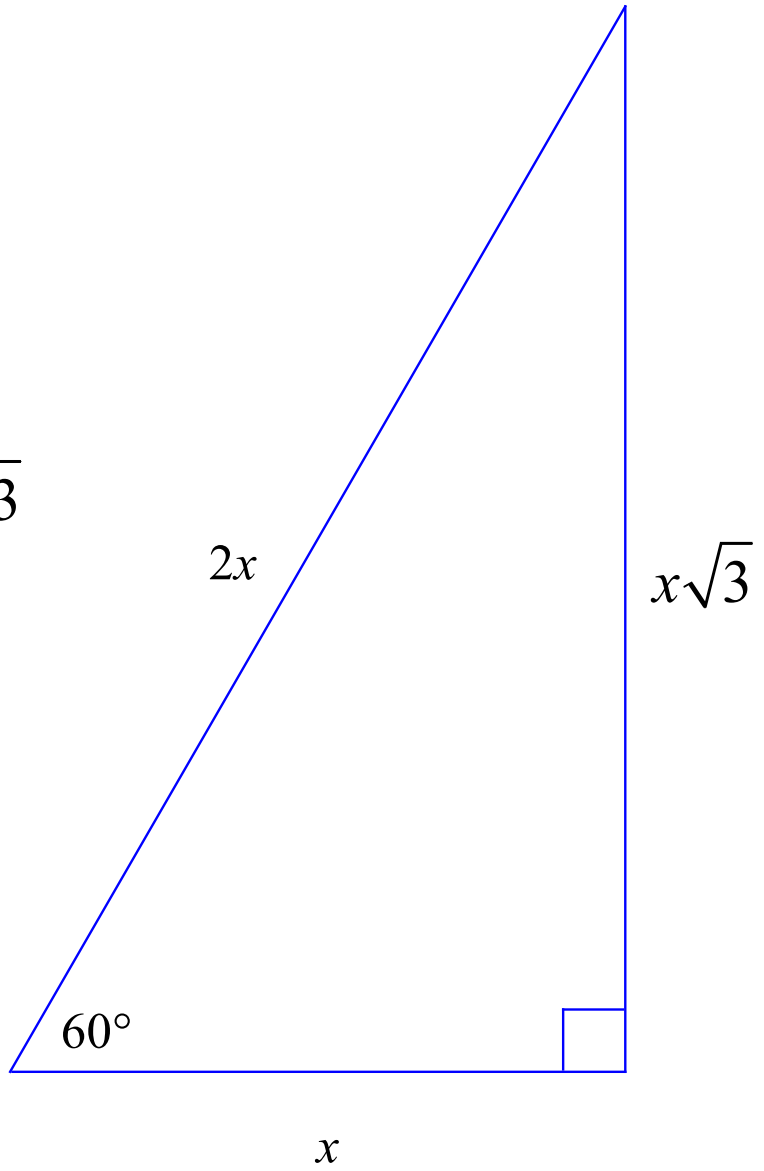
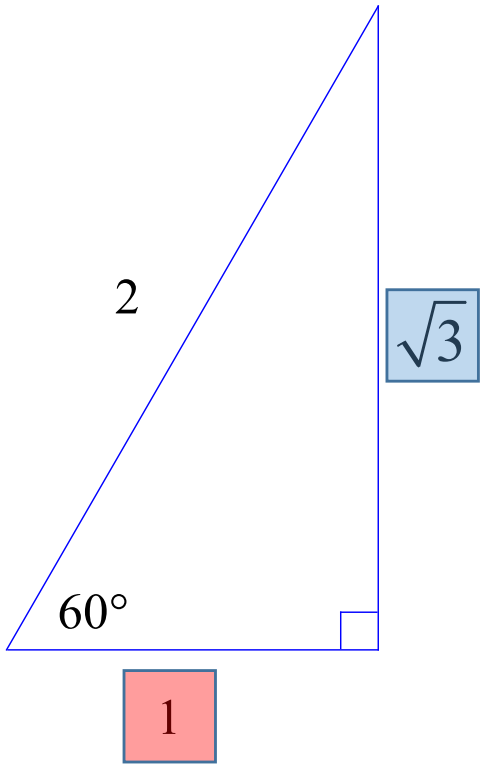
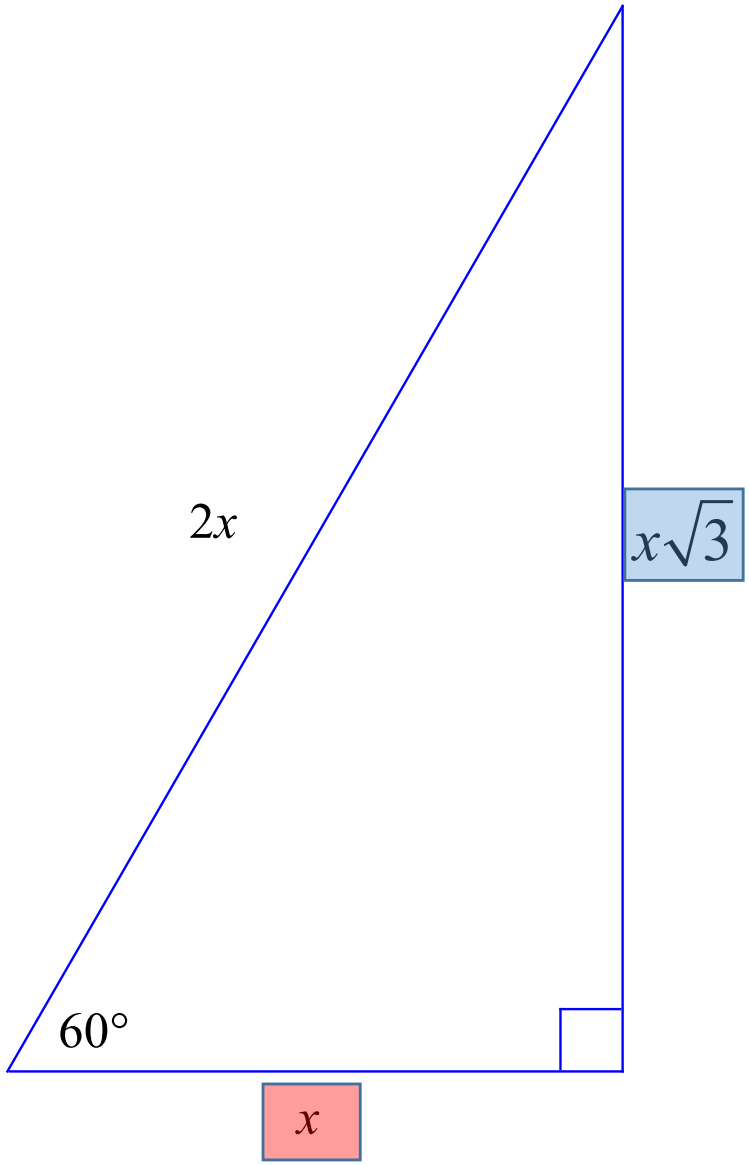
What is the Tangent of an Angle?


2
$\sqrt{3}$
60°
1


4
$2\sqrt{3}$
60°
2


$2x$
$x\sqrt{3}$
60°
x





Notice that the ratio of each side to another doesn't change regardless of the size of the triangle

For example, the ratio of the side opposite the 60° angle divided by side adjacent to the 60° angle is

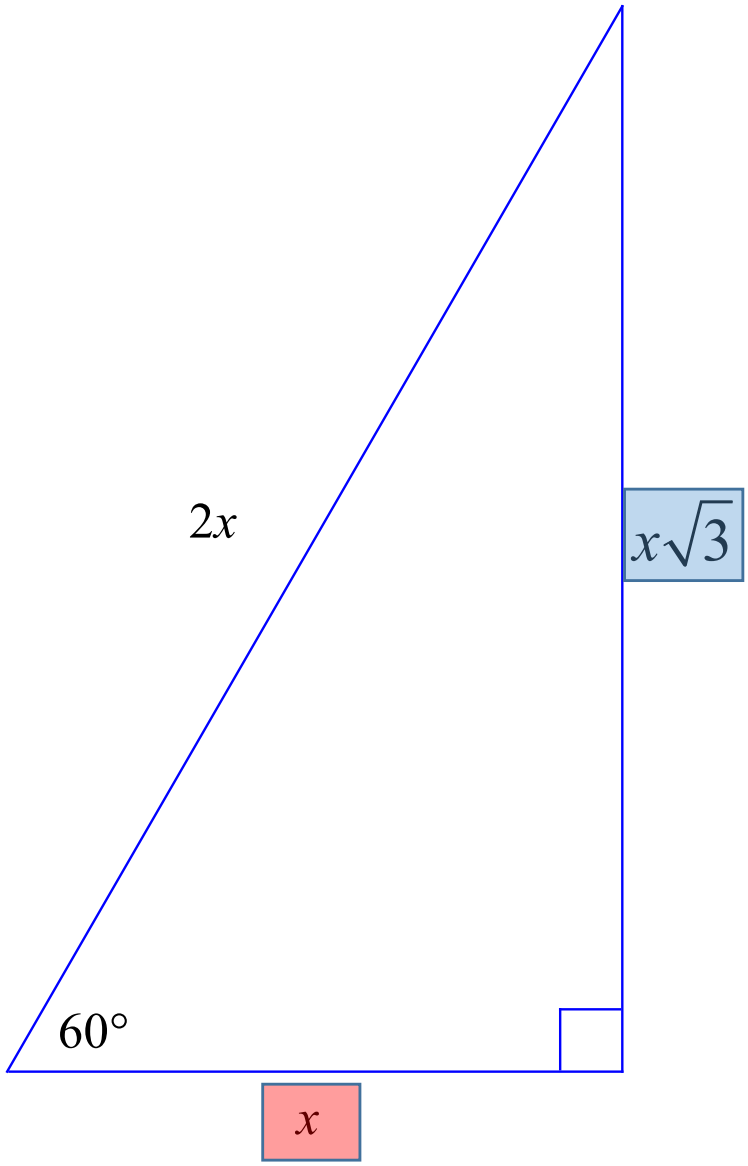
$$\frac{\text{Opposite}}{\text{Adjacent}} = \frac{x\sqrt{3}}{x} = \sqrt{3}$$

Finding the ratio of the opposite side to the adjacent side is called ***taking the Tangent of the angle***

So the Tangent of 60° is

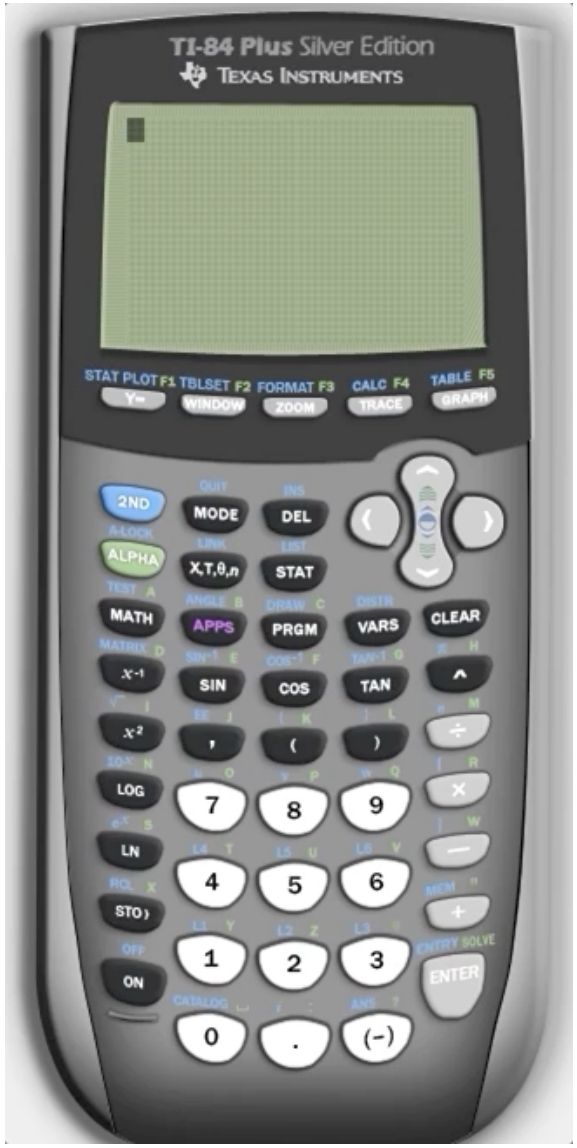
$$\frac{\text{Opposite}}{\text{Adjacent}} = \frac{x\sqrt{3}}{x} = \sqrt{3}$$

Now try this on your graphing calculator



So the Tangent of 60° is

$$\frac{\text{Opposite}}{\text{Adjacent}} = \frac{x\sqrt{3}}{x} = \sqrt{3}$$



Does this number look familiar?

$$\sqrt{3} \approx 1.732$$

Now take the tangent of 30º. Does this number look familiar?

$$\frac{1}{\sqrt{3}} \approx 0.5774$$

Why? The tangent of 30º is just the reciprocal of the tangent of 60º.