

- (2 points) A rectangle's longer side is 1. Find the exact value of the shorter side if the following is true. The ratio of the shorter side to the longer side is the same as the ratio of the longer side to the sum of the longer and shorter sides.
- (5 points) Consider the triangle shown on the picture below. It is an isosceles triangle with base angles 72° . Find the exact value of x , the length of the shorter side if the longer side is 1. Hint: bisect the base angle as shown on the picture below and use similar triangles.

After that, compute the exact value of each of

$\sin 18^\circ$ $\cos 18^\circ$ $\tan 18^\circ$ $\csc 18^\circ$ $\sec 18^\circ$ $\cot 18^\circ$ and

$\sin 72^\circ$ $\cos 72^\circ$ $\tan 72^\circ$ $\csc 72^\circ$ $\sec 72^\circ$ $\cot 72^\circ$

