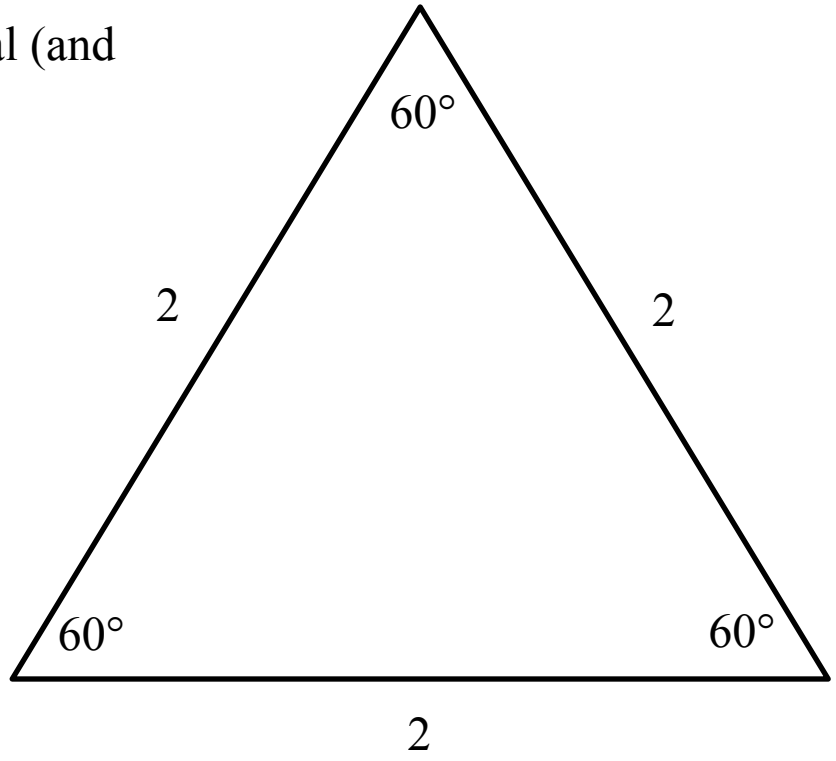
If we take an equilateral (and equiangular) triangle

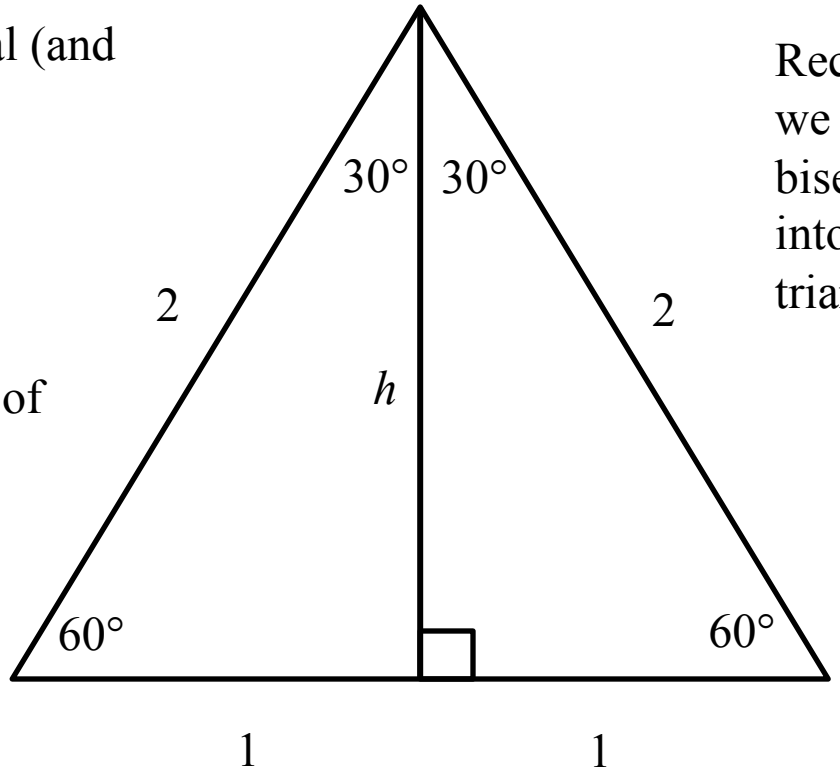
and split it into two triangles, what are the dimensions?



If we take an equilateral (and equiangular) triangle

and split it into two triangles, what are the dimensions?

What would the height of the triangle be?



Recall last chapter when we proved that we could bisect an isosceles triangle into two congruent right triangles

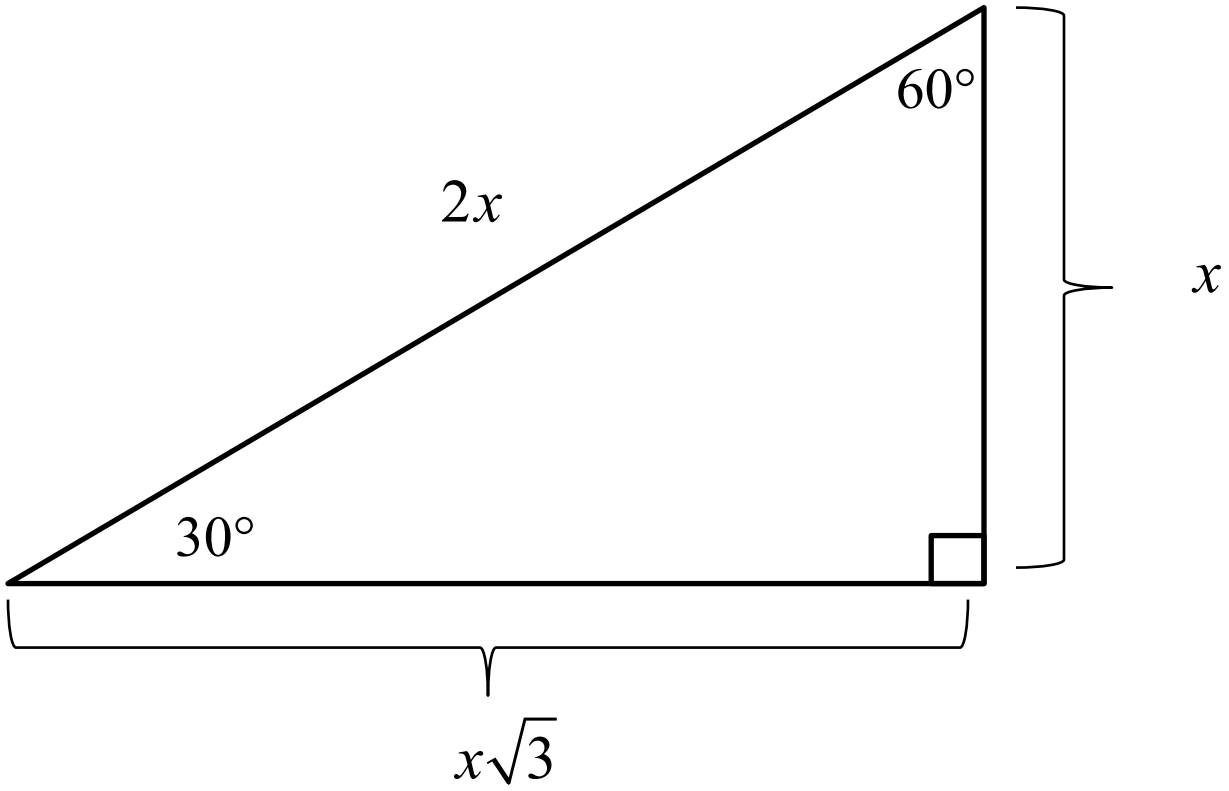
Using the Pythagorean Theorem

$$1^2 + h^2 = 2^2$$

$$h^2 = 3$$

$$h = \sqrt{3}$$

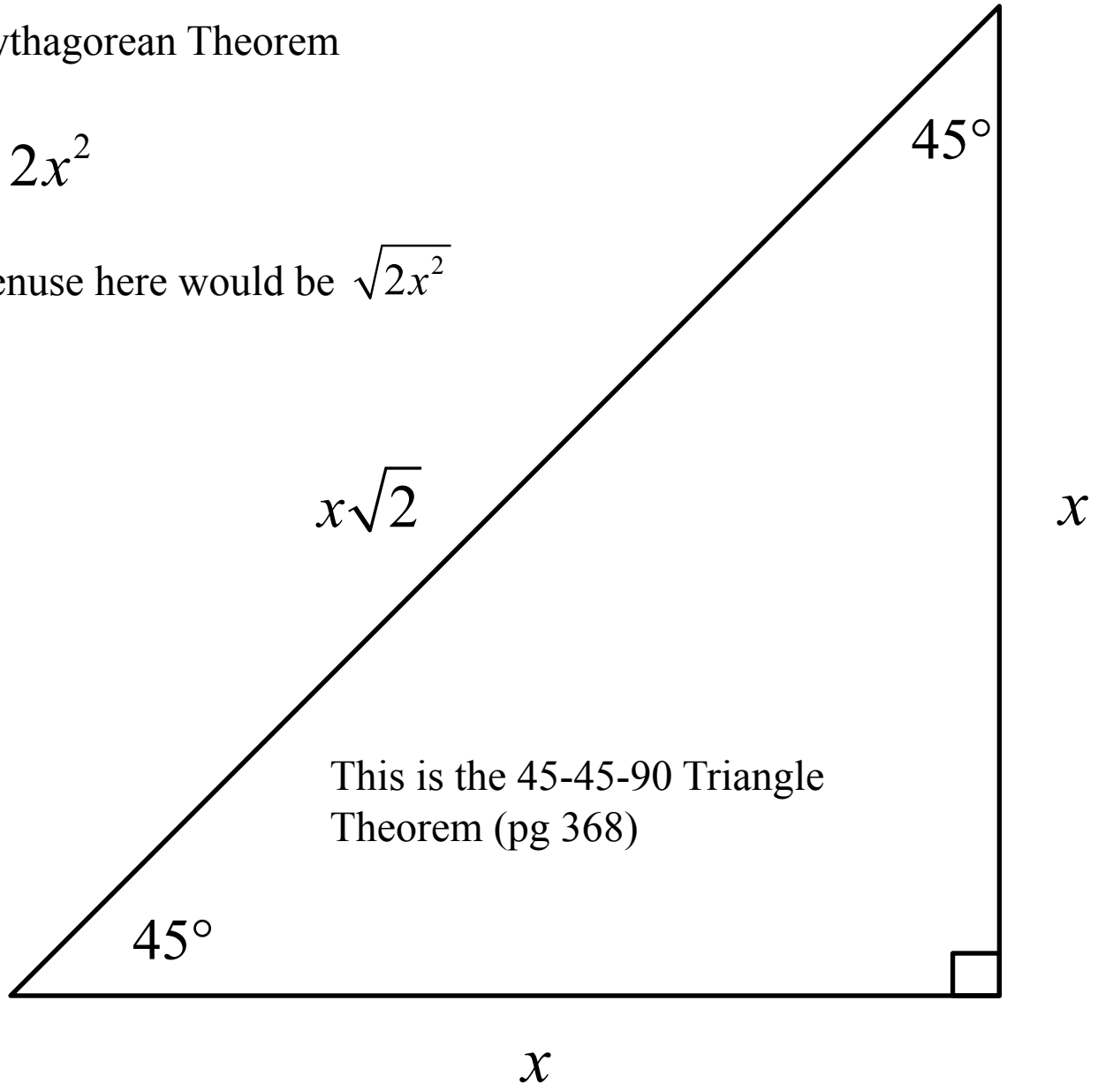
The 30-60-90 Triangle Theorem (pg 370) states what you see below



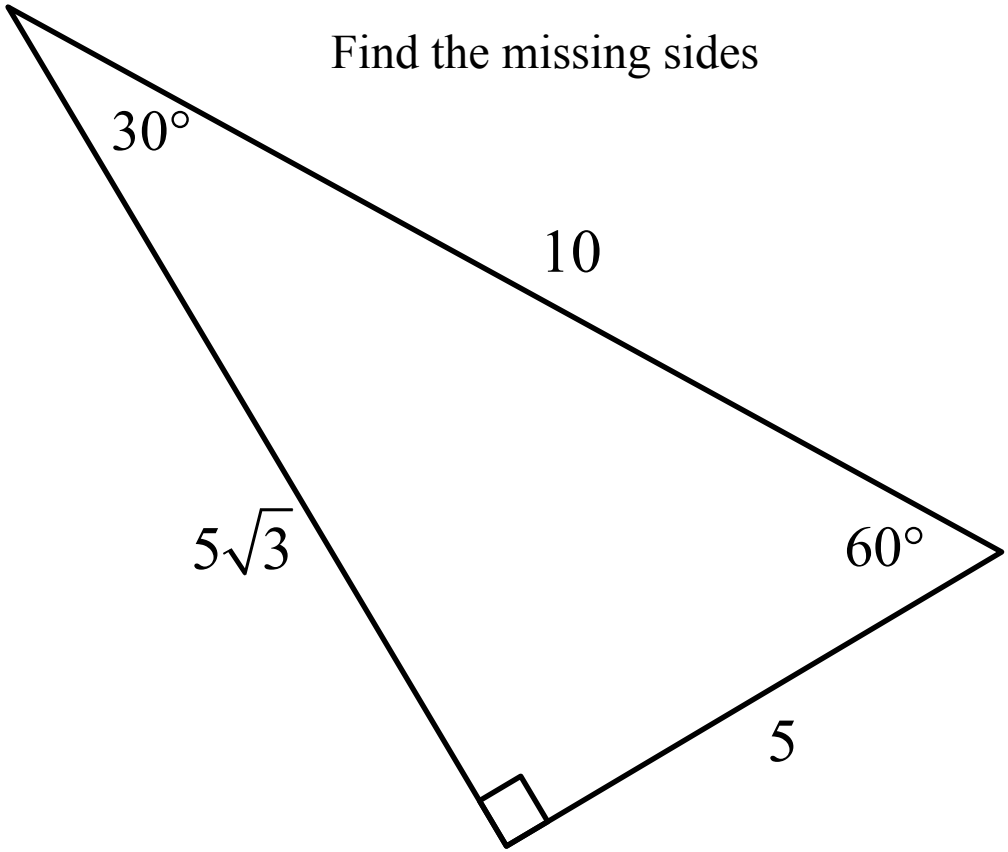
Using the Pythagorean Theorem

$$x^2 + x^2 = 2x^2$$

So the hypotenuse here would be $\sqrt{2x^2}$



Find the missing sides



$$x\sqrt{2} = 7$$

$$x = \frac{7}{\sqrt{2}} \quad \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = \frac{7\sqrt{2}}{2}$$