

## Math 170 Problem of the Week for Week 5

Solve for  $x$ ,

$$\sqrt{1 + \sqrt{1 + x}} = \sqrt[3]{x}$$

(I will put a hint on a separate link. This will be a link to a strategy)

The method I used, towards the end, involves the rational zero test and synthetic/long division

Raise both sides of the equation to the 6<sup>th</sup> power, since square roots are powers to the one-half and cube roots are powers to the one-third.

Let  $u = \sqrt{1 + x}$  and methodically get everything in terms of  $u$ .