

c) there are real numbers a and b such that

$$\sqrt{a+b} = \sqrt{a} + \sqrt{b}$$

counterexample :

$$\text{let } a=9 \text{ and } b=16$$

$$\text{then } \sqrt{a+b} = \sqrt{a} + \sqrt{b}$$

basic algebra

$$\sqrt{9+16} = \sqrt{9} + \sqrt{16}$$

BA

$$\sqrt{25} = 3+4$$

$$5 \neq 7$$

Q.E.D.