(A.1.95)

Exercise A.1.95 Simplify $\sqrt{(-4)^2}$.

Solution

We work inside the square root first (because of the parentheses). We have

$$\sqrt{(-4)^2} = \sqrt{(-4)(-4)} = \sqrt{16} = 4.$$

In short $\boxed{\sqrt{(-4)^2} = 4.}$

Also, as we observed in Note A.1.E,

$$\sqrt{a^2} = |a| \text{ for any real number } a.$$

Applying this, we also get

$$\sqrt{(-4)^2} = |-4| = 4, \text{ as above.} \quad \square$$