

$$(\sqrt{16})^5 \cdot (\sqrt{128})^3 = (\sqrt{2^4})^5 \cdot (\sqrt{2^7})^3 =$$

$$= \left(2^4\right)^{\frac{1}{2} \cdot 5} \cdot \left(2^7\right)^{\frac{1}{2} \cdot 3} = (2^2)^5 \cdot (2^{\frac{7}{2}})^3 =$$

$$= 2^{10} \cdot 2^{\frac{21}{2}} = 2^{(10 + \frac{21}{2})} = 2^{\left(\frac{20+21}{2}\right)} = 2^{\frac{41}{2}}$$