

Let's simplify $125^{(2/3)}$ step by step.

1. **Understand the exponent:** The exponent $2/3$ means we have to raise 125 to the power of 2, and take the cube root (because of the 3 in the denominator), or vice versa.
2. **Rewrite the expression:** $125^{(2/3)} = (125^{(1/3)})^2$. This means first find the cube root of 125, then square the result.
3. **Find the cube root of 125:** The cube root means the number that, when multiplied by itself three times, gives 125. Since $5 \times 5 \times 5 = 125$, the cube root of 125 is **5**.
4. **Square the result:** Now, square 5: $5^2 = 25$.
5. **Final answer:** So, $125^{(2/3)} = 25$.

Summary: $125^{(2/3)} = (\text{cube root of } 125) \text{ squared} = 5^2 = 25$.