Objective #13

Cube and fourth roots

Simplify:

1. $\sqrt[3]{64}$ [A] 4 [B] 16 [C] 5 [D] 21 R 1

$\sqrt[3]{4^3} = 4$

$64 = 2^6 = (2^2)^3 = 4^3$

2. $\sqrt[4]{81}$

$\sqrt[4]{3^4} = 3$

$81 = 3^4$

3. $\sqrt[3]{-8}$ [A] 2 [B] −2 [C] 4 [D] not a real number

$(-2)^3$ $\sqrt[3]{(-2)^3} = -2$

4. $\sqrt[3]{-216}$

$216 = 2^3 \cdot 3^3$

$-216 = -(2^3)(3^3)$

$\sqrt[3]{(-2)^3(3)^3} = -2(3) = -6$