

Use the lists below to help....

**Perfect Cubes:**  $2^3 = \boxed{8}$   $3^3 = \boxed{27}$   $4^3 = \boxed{64}$   $5^3 = \boxed{125}$   $6^3 = \boxed{216}$ **Perfect Powers of Six:**  $2^6 = \boxed{64}$ **Perfect Powers of Four:**  $2^4 = \boxed{16}$   $3^4 = \boxed{81}$   $4^4 = \boxed{256}$ **Perfect Powers of Seven:**  $2^7 = \boxed{128}$ **Perfect Powers of Five:**  $2^5 = \boxed{32}$   $3^5 = \boxed{243}$ **Perfect Powers of Eight:**  $2^8 = \boxed{256}$ 

Simplify or solve for x for the following problems. No decimal solutions. MUST SHOW ALL WORK.

1)  $-2\sqrt[3]{32x^2y}$

2)  $125^{2/3}$

3)  $3\sqrt[3]{81m^2n^4p^3}$

4)  $-3\sqrt[4]{6} - 3\sqrt[4]{32} - 2\sqrt[4]{32}$

5)  $\sqrt[3]{4x^3} \cdot \sqrt[3]{3x^2}$

6)  $\frac{1}{4}x^3 - 24 = -8$

7)  $\sqrt[3]{-3y^3} \cdot -2\sqrt[3]{36y^4}$

8)  $\frac{\sqrt[4]{3}}{\sqrt[4]{64}}$

9)  $4(x+5)^4 - 13 = 51$

10)  $\sqrt[4]{288}$

11)  $(81m^6)^{\frac{1}{2}}$

12)  $\frac{\sqrt[5]{y^{10}}}{\sqrt[5]{2x^2}}$

13)  $3\sqrt[3]{y} + 5\sqrt[3]{27y}$

14)  $\frac{-3x}{\sqrt[5]{x^6}}$

15)  $\sqrt[5]{8} \cdot \sqrt[5]{8}$