perfect squares: 1 4 9 16 25 36 49 64 81 100 121 144 169 196 225 256 289 324 361 400
perfect cubes: 1 8 27 64 125 216 343 512 729 1000

Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 14A.3 – Even More Simplifying Irrational Radicals

#1-10, Simplify each radical expression.

1. $\sqrt{75}$ $= \sqrt{25 \cdot 3}$

$= \boxed{5\sqrt{3}}$

2. $5\sqrt{128}$ $= 5\sqrt{64 \cdot 2}$

$= 5 \cdot 8\sqrt{2}$

$= \boxed{40\sqrt{2}}$

3. $\sqrt[3]{-54}$ $= \sqrt[3]{-27 \cdot 2}$

$= \boxed{-3\sqrt[3]{2}}$

4. $-32\sqrt[3]{-48}$ $= -32\sqrt[3]{-8 \cdot 6}$

$= -32 \cdot (-2)\sqrt[3]{6}$

$= \boxed{64\sqrt[3]{6}}$

5. $\sqrt{32x^3y}$ $= \sqrt{16 \cdot 2 \cdot x^2 \cdot x \cdot y}$

$= \boxed{4x\sqrt{2xy}}$

6. $-2\sqrt{18m^6n^{10}}$ $= -2\sqrt{9 \cdot 2 \cdot m^6 \cdot n^{10}}$

$= -2 \cdot 3 \cdot m^3 \cdot n^5\sqrt{2}$

$= \boxed{-6m^3n^5\sqrt{2}}$

7. $3\sqrt{50a^3b^8c^{13}}$ $= 3\sqrt{25 \cdot 2 \cdot a^2 \cdot a \cdot b^8 \cdot c^{12} \cdot c}$

$= 3 \cdot 5 \cdot a \cdot b^4 \cdot c^6\sqrt{2ac}$

$= \boxed{15ab^4c^6\sqrt{2ac}}$

8. $\sqrt{98x^8y^5z}$ $= \sqrt{49 \cdot 2 \cdot x^8 \cdot y^4 \cdot y \cdot z}$

$= \boxed{7x^4y^2\sqrt{2yz}}$

9. $-\sqrt[3]{24m^{15}n^{13}p^{20}}$

$= -\sqrt[3]{8 \cdot 3 \cdot m^{15} \cdot n^{12} \cdot n \cdot p^{18} \cdot p^2}$

$= \boxed{-2m^5n^4p^6\sqrt[3]{3np^2}}$

10. $\sqrt[3]{250r^7s^2t^5}$

$= \sqrt[3]{125 \cdot 2 \cdot r^6 \cdot r \cdot s^2 \cdot t^3 \cdot t^2}$

$= \boxed{5r^2t\sqrt[3]{2rs^2t^2}}$