

LT #1: Roots & Radical Expressions

Simplify the expression without the use of a calculator. Write answers with positive exponents only. (2 pts each)

1.  $5^{-2}$   
 $\frac{1}{25}$

2.  $\sqrt[4]{32x^6y^8z^{14}}$   
 $\sqrt[4]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot x^6 y^8 z^{14}}$   
 $2xy^2z^3 \sqrt[4]{2x^2z^2}$

3.  $(3x^3y^6)^2$

4.  $\sqrt[3]{-27x^4y^9}$   
 $-3xy^3 \sqrt[3]{x}$

5.  $(3^{\frac{1}{2}} \cdot 4^{\frac{1}{2}})^2$   
 $3 \cdot 4$   
 $12$

6.  $\sqrt[5]{64x^{12}y^{10}}$   
 $\sqrt[5]{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot x^{12} y^{10}}$   
 $2x^2y^2 \sqrt[5]{2x^2}$

7.  $\left(\frac{2x^{-3}y^6}{3x^7y^{-1}}\right)^{-2}$   
 $\left(\frac{3x^7y^{-1}}{2x^{-3}y^6}\right)^2$   
 $7 - (-3) = 10$   
 $-1 - 6 = -7$   
 $\left(\frac{3x^{10}}{2y^7}\right)^2$

8.  $\frac{(3xy^{-3})^2}{4(x^5y^{-2})^3}$   
 $\frac{9x^2y^{-6}}{4x^{15}y^{-6}}$

9.  $2a^3(3a^2)^2(a^{-3})^{-1}$   
 $2a^3(9a^4)a^3$

1.  $\frac{1}{25}$
2.  $\frac{2|xz^3|y^2\sqrt[4]{2x^2z^2}}{\quad}$
3.  $\frac{9x^6y^{12}}{\quad}$
4.  $\frac{-3xy^3\sqrt[3]{x}}{\quad}$
5.  $\frac{12}{\quad}$
6.  $\frac{2x^2y^2\sqrt[5]{2x^2}}{\quad}$
7.  $\frac{9x^{20}}{4y^{14}}$
8.  $\frac{9}{4x^{13}}$
9.  $\frac{18a^{10}}{\quad}$