



Date:

Section:

Objective:

*Square Root:*

*Radical Sign:*

*Radicand:*

*Perfect squares:*

*List of common perfect squares:*

*Perfect cubes:*

*List of common perfect cubes:*

**Examples:** Simplify each of the following:

- a)  $\sqrt{121}$       b)  $\sqrt{81}$       c)  $\sqrt{\frac{4}{9}}$       d)  $\sqrt{y^4}$       e)  $\sqrt{z^{14}}$

*nth Root:*

*Index:*

**Examples:** Simplify each expression, if possible.

- a)  $\sqrt[3]{125}$       b)  $\sqrt[4]{81}$       c)  $\sqrt[5]{32}$       d)  $\sqrt[3]{8x^6y^3}$

**Steps To Simplify a Radical Expression with Index  $n$  Using a Factor Tree:**

1. .
2. .
3. .
4. .
5. .

(This is called “Prison story”.)

**Short cuts:**

1. variables—

2. perfect squares—

**Examples:** Simplify each expression.

a)  $\sqrt{12}$

b)  $\sqrt{40}$

c)  $5\sqrt{72}$

d)  $\sqrt{20x^2y^3}$

e)  $2xy^2\sqrt{300x^3y^5}$

f)  $\sqrt[3]{54}$

g)  $7\sqrt[3]{40}$

h)  $\sqrt[3]{32t^7u^9}$

i)  $3m\sqrt[3]{40mn^6}$

j)  $\sqrt[4]{240}$

k)  $\sqrt[4]{x^6y^9z^3}$

l)  $pr\sqrt[5]{p^7q^{23}r^{14}}$