

Name: \_\_\_\_\_

## Sec. 11.2: Simplify Radical Expressions

Properties of Radicals:

radical symbol  $\longrightarrow \sqrt{17x} \longleftarrow$  radicand

- $\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$  where  $a \geq 0$  and  $b \geq 0$ .

- $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$

Simplest Form: A radical expression must satisfy all of the following to be in simplest form:

- No \_\_\_\_\_ other than 1 in the \_\_\_\_\_
- No \_\_\_\_\_ in the radicand
- No radicals appear in the \_\_\_\_\_ of a fraction

### Examples

Simplify.

1.  $\sqrt{24}$

2.  $\sqrt{30}$

3.  $\sqrt{x^5}$

4.  $\sqrt{\frac{9}{4}}$

5.  $\sqrt{\frac{11}{4}}$

6.  $\sqrt{125x^6y^7}$

7.  $\sqrt{\frac{2}{3}}$  (Rationalize the denominator.)

## Sec. 11.2 Practice Problems

Simplify.

1)  $\sqrt{32}$

2)  $\sqrt{50}$

3)  $\sqrt{8}$

4)  $-3\sqrt{112}$

5)  $\sqrt{200r}$

6)  $\sqrt{180b}$

7)  $\sqrt{80a^3}$

8)  $\sqrt{150x^2}$

$$9) \sqrt{32n^2}$$

$$10) -8\sqrt{54x^4}$$

$$11) -5\sqrt{32v^3}$$

$$12) -\sqrt{8k}$$

$$13) 2\sqrt{24n}$$

$$14) 5\sqrt{18x^4}$$

$$15) \sqrt{12x^2y^3}$$

$$16) \sqrt{343a^3b^3}$$

$$17) \sqrt{294a^4b^4}$$

$$18) \sqrt{147x^4y^2}$$

$$19) -6\sqrt{70}$$

$$20) -\sqrt{144xy^3}$$

$$21) -8\sqrt{75x^2y^4}$$

$$22) \sqrt{36x^4yz^2}$$

$$23) \sqrt{16hj^2k^3}$$

$$24) \sqrt{48x^3y^3z^4}$$

## Answers to Sec. 11.2 Practice Problems

1)  $4\sqrt{2}$

5)  $10\sqrt{2r}$

9)  $4n\sqrt{2}$

13)  $4\sqrt{6n}$

17)  $7a^2b^2\sqrt{6}$

21)  $-40y^2x\sqrt{3}$

2)  $5\sqrt{2}$

6)  $6\sqrt{5b}$

10)  $-24x^2\sqrt{6}$

14)  $15x^2\sqrt{2}$

18)  $7x^2y\sqrt{3}$

22)  $6x^2z\sqrt{y}$

3)  $2\sqrt{2}$

7)  $4a\sqrt{5a}$

11)  $-20v\sqrt{2v}$

15)  $2xy\sqrt{3y}$

19)  $-6\sqrt{70}$

23)  $4jk\sqrt{hk}$

4)  $-12\sqrt{7}$

8)  $5x\sqrt{6}$

12)  $-2\sqrt{2k}$

16)  $7ab\sqrt{7ab}$

20)  $-12y\sqrt{xy}$

24)  $4z^2xy\sqrt{3xy}$