

Lesson 5.4- SWBAT simplify radical expressions.

Kickoff

Simplify each of the following:

1) $\sqrt{x^4}$ x^2 n'

2) $\sqrt{x^6y}$ $x^3 \sqrt{y}$

3) $\sqrt{125n}$ $5\sqrt{5n}$

4) $\sqrt{100v^3}$ $10v\sqrt{v}$

Perfect Square!

① $3xy^3\sqrt{2x}$ ② $5x^4\sqrt{6}$

③ $4x^5$ ④ $4x^2y^3\sqrt{6y}$

⑤ $2x^3y\sqrt{2}$ ⑥ $2x^4y^2\sqrt{5x}$

⑦ $8x^5y^4\sqrt{5y}$ ⑧ $7x^2y^4\sqrt{2}$

To Simplify a Radical Expression

- Find the factors of the inside number and one of the factors must be a perfect square.
- Split the inside numbers into two different radicals
- The perfect square, and the highest even exponent variable first and then the other factor and any odd exponent variables.
- Take the square root of the perfect square and divide the variables exponent by 2 and if there is a number on the outside multiply it to the number.

Examples: Put each of the following in simplest radical form.

1) $\sqrt{8x^7}$ $2x^3\sqrt{2x}$

2) $\sqrt{24x^6y}$ $2x^3\sqrt{6y}$

4, 9, 16, 25, 36, 49, 64, 81, 100

3) $\sqrt{40xy^8}$ $2y^4\sqrt{10x}$

4) $\sqrt{36x^8y^7}$ $6x^4y^3\sqrt{y}$

5) $\sqrt{9x^3y^2z^2}$ $3xy\sqrt{yz}$

6) $\sqrt{28x^3y^8z^4}$ $2x^2y^4z^2\sqrt{7x}$

7) $\sqrt{64x^6y^8z^{10}}$

8) $5\sqrt{12x^3y^5z}$

9) $2\sqrt{32x^2y^8z^2}$

10) $\sqrt{18xy^3}$

11) $\sqrt{45x^7y^{10}z^3}$

12) $3\sqrt{50x^2y^5z^{10}}$

13) $\sqrt{27x^4}$

14) $5\sqrt{40y^7}$

15) $\sqrt{x^2y^7z^8}$

16) $\sqrt{x^5y^7z^{11}}$

17) $3\sqrt{175x^4y^9}$

18) $\sqrt{125x^2y^8z^{10}}$

19) $4\sqrt{200x^2y}$

20) $4\sqrt{50xyz^9}$