**Unit 2 #5 RADICAL EXPRESSIONS & EQUATIONS**

RADICAL EXPRESSIONS

PERFECT SQUARES Example $\sqrt{18}$

STEPS TO SIMPLIFYING RADICAL EXPRESSIONS:

1. Factor the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Make sure one of the factors is a \_\_\_\_\_\_\_\_\_\_\_\_\_
 square.

3. Take the \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ of the
 \_\_\_\_\_\_\_\_\_\_\_\_\_ perfect square factor.

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ what’s left in the radicand.

|  |  |
| --- | --- |
| $$\sqrt{a^{2}}$$ |  |
| $$\sqrt{4}$$ |  |
| $$\sqrt{9}$$ |  |
| $$\sqrt{16}$$ |  |
| $$\sqrt{25}$$ |  |
| $$\sqrt{36}$$ |  |
| $$\sqrt{49}$$ |  |
| $$\sqrt{64}$$ |  |
| $$\sqrt{81}$$ |  |

 **Practice Problems**

1. $\sqrt{24}$ 2. $\sqrt{108}$ 3. $\sqrt{27}$ 4. $\sqrt{72}$ 5. $\sqrt{96}$

RADICAL EQUATIONS

**Beaufort Wind Scale!** The Beaufort Wind Scale was devised to measure wind speed. The Beaufort number, *B*, which range from 0-12, can be modeled by *B* = 1.69$\sqrt{s+4.45}$ – 3.49 where *s* is the speed (in miles per hour) of the wind.

If the sailors have the best and safest wing when the Beaufort number is 6, how fast is the wind moving?

**SO WHO WON AMERICA’S CUP LAST YEAR?**

TO SOLVE A RADICAL EQUATION CONTAINING ONE SQUARE ROOT:

1. \_\_\_\_\_\_\_\_\_\_\_ the radical on one side of the equation.
2. \_\_\_\_\_\_\_\_\_\_\_ both sides of the equation.
3. Solve for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. \_\_\_\_\_\_\_\_\_\_\_ the solutions.

PRINCIPLE FOR SOLVING RADICAL EQUATIONS:

If \_\_\_\_\_\_ and \_\_\_\_\_\_ are real numbers, *n* is a positive integer, and *a*  =  *b*, then:

**Example Problems** 1. $\sqrt{x+3}$ – 5 = 0 2. 10 = $\sqrt[3]{6x-2}$

3. A ten-foot board leans against an 8-foot wall so that the top end of the board is at the top of the wall. How far must the bottom of the board be from the wall? Let x be the distance from the bottom of the board to the wall. Use the Pythagorean Theorem.