

## Day 2 INCLASS

Date \_\_\_\_\_

1) What is a radical?

2) What is a root?

3) What do each of the following symbols represent?

$\sqrt{x}$

$\sqrt[4]{x}$

4) Explain the difference between the following 2 expressions.

$\sqrt[3]{8}$

$3\sqrt{8}$

$\sqrt[3]{x}$

$\sqrt[100]{x}$

5) From the warmup quiz we got:  $\sqrt{25} \cdot \sqrt{9}$ Then, find  $25 \cdot 9$ Make a conjecture: What is  $\sqrt{25 \cdot 9}$ ?

Rule:

$\sqrt{a} \cdot \sqrt{b} = \underline{\hspace{2cm}}$

Knowing this rule helps us to simplify radicals (square roots, cube roots, etc) that are not rational.

Such as  $\sqrt{8}$ Let's try one together using this rule:  $\sqrt{8}$ 

Another way to do these problems is using a factor tree.

**Simplify each radical expression using factor tree or multiplication method.**

6)  $\sqrt{20}$

7)  $\sqrt{75}$

8)  $\sqrt{32}$

9)  $\sqrt{72}$

10)  $\sqrt{175x^3}$

11)  $\sqrt{100r^2}$

12)  $\sqrt{12n^2}$

13)  $\sqrt{54n^2}$

14)  $\sqrt[3]{-250}$

15)  $\sqrt[3]{-64}$

16)  $\sqrt[4]{80}$

17)  $\sqrt[3]{16}$

18)  $3\sqrt{50}$

19)  $3\sqrt{54}$

20)  $3\sqrt[4]{48k^6}$

21)  $5\sqrt[4]{96b^7}$

22) If your answer to an above problem is  $3\sqrt{2}$ , what would the question have been?

23) If your answer to an above problem is  $5x\sqrt{2}$ , what would the question have been?

**Undo the following problems (like in 22 and 23) by rewriting with no coefficients and everything under the square root.**

24)  $2y\sqrt{3}$

25)  $3y^2\sqrt{5}$

26)  $12\sqrt{x}$

27)  $xy\sqrt{3}$

28) Is  $\sqrt{25} + \sqrt{4} = \sqrt{25 + 4}$ ?

How can we add square roots?

Try this one:  $3\sqrt{5} - 2\sqrt{5}$

**Simplify.**

29)  $3\sqrt{6} + \sqrt{24}$

30)  $2\sqrt{5} + 4\sqrt{125}$

31)  $-\sqrt{8} + 2\sqrt{8}$

32)  $-5\sqrt{3} - \sqrt{12}$

33)  $3\sqrt{2} + 3\sqrt{18} + 3\sqrt{45}$

34)  $3\sqrt{24} + 3\sqrt{3} - \sqrt{12}$

35)  $\sqrt{10}(\sqrt{6} + \sqrt{10})$

36)  $\sqrt{5}(\sqrt{3} + \sqrt{2})$