

Daily Agenda

**Learning Targets:**  
 I can simplify radical expressions.  
 I can solve radical equations.

**Homework**  
 6.2 Worksheet

**Assessments**  
 6.1 to 6.2 Quiz 12/7  
 Unit 6 Test 12/13  
 Skills Test 12/14  
 Final Exam 12/20

There is no substitute for hard work.  
 -Thomas Edison

Nov 15-8:24 PM

①  $\sqrt[3]{2187} - 2\sqrt[3]{27}$

$\sqrt[3]{9^3 \cdot 3} - 2\sqrt[3]{8 \cdot 3}$

$9\sqrt[3]{3} - 4\sqrt[3]{3}$

$5\sqrt[3]{3}$

$$\begin{array}{r} 729 \\ 3 \overline{) 2187} \\ \underline{-21} \phantom{00} \\ 87 \\ \underline{-81} \phantom{00} \\ 27 \\ \underline{-27} \\ 0 \end{array}$$

Dec 5-11:04 AM

⑨  $\frac{7}{\sqrt[4]{49}} = \frac{7}{\sqrt[4]{7^2}} \cdot \frac{\sqrt[4]{7^2}}{\sqrt[4]{7^2}} = \frac{7\sqrt[4]{7^2}}{\sqrt[4]{7^4}}$

$\frac{\cancel{7}\sqrt[4]{7^2}}{\cancel{7}} = \sqrt[4]{7^2} = 7^{2/4} = 7^{1/2} = \sqrt[2]{7}$

exp  
index of rad.

Dec 5-11:07 AM

$8^{3/5} = \sqrt[5]{8^3}$

Dec 5-11:11 AM

④  $(\sqrt{5}-\sqrt{3})^2$

$(\sqrt{5}-\sqrt{3})(\sqrt{5}-\sqrt{3})$

$\sqrt{25} - \sqrt{5} - \sqrt{15} + \sqrt{9}$

$5 - 2\sqrt{15} + 3$

$8 - 2\sqrt{15}$

Dec 5-11:11 AM

⑬  $\left(1 + \frac{1}{\sqrt{3}}\right) \cdot \sqrt{3} = \frac{(\sqrt{3}+1)(\sqrt{3}+1)}{(\sqrt{3}-1)(\sqrt{3}+1)}$

$\frac{3 + \sqrt{3} + \sqrt{3} + 1}{3-1} = \frac{4+2\sqrt{3}}{2} = 2 + \sqrt{3}$

Dec 5-11:13 AM

Simplify

$$\sqrt[8]{64}$$

$$\sqrt[8]{2^6}$$

$$2^{6/8} = 2^{3/4}$$

$$\sqrt[4]{2^3} = \sqrt[4]{8}$$

$$\sqrt[8]{8^2}$$

$$8^{2/8}$$

$$8^{1/4}$$

$$\sqrt[4]{8}$$

Dec 5-10:03 AM

$$\sqrt[6]{256}$$

$$\sqrt[6]{16^2}$$

$$16^{2/6}$$

$$16^{1/3}$$

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

$$\sqrt[6]{4^4}$$

$$4^{4/6}$$

$$4^{2/3}$$

$$\sqrt[3]{4^2}$$

$$\sqrt[6]{2^8}$$

$$2^{8/6}$$

$$2^{4/3}$$

$$\sqrt[3]{2^4}$$

Dec 5-11:20 AM

6.2 Solving Radical Equations

How would you solve?

$$\sqrt{x+5} = 8$$

$$\begin{array}{r} \sqrt{x+5} = 8 \\ -5 \quad -5 \\ \hline (\sqrt{x})^2 = 3^2 \\ x = 9 \end{array}$$

Nov 15-8:30 PM

Steps to Solve

- Isolate the radical
- Raise each side to a power
- Simplify
- Repeat, if necessary
- Solve
- Check solutions

Jan 28-7:37 AM

Find the solution set of the following equation.

$$(\sqrt[3]{4x-1})^3 = (3)^3$$

$$4x-1 = 27$$

$$\begin{array}{r} 4x-1 = 27 \\ +1 \quad +1 \\ \hline 4x = 28 \\ \hline x = 7 \end{array}$$

Jan 27-6:50 AM

Find the solution set of the following equation.

$$x+5 = \sqrt{x+5} + 6$$

$$(x-1)^2 = (\sqrt{x+5})^2$$

$$(x-1)(x-1)$$

$$x^2 - 2x + 1 = x + 5$$

$$\begin{array}{r} x^2 - 2x + 1 = x + 5 \\ -x - 5 \quad -x - 5 \\ \hline \end{array}$$

$$x^2 - 3x - 4 = 0$$

$$(x+1)(x-4) = 0$$

$$x = -1, 4$$

-1 is extraneous

Jan 27-6:50 AM

Find the solution set of the following equation.

$$\sqrt{3x+10} - 4 = x$$

$$\sqrt{3x+10} = (x+4)$$

$$3x+10 = x^2 + 8x + 16$$

$$0 = x^2 + 5x + 6$$

$$0 = (x+3)(x+2)$$

$$x = -2, -3$$

Jan 27-6:50 AM