

Name _____ Period _____ Date _____



Simplifying Radicals (page 1)

“To simplify a radical” means to remove all perfect squares or cubes from under the $\sqrt{\quad}$ or $\sqrt[3]{\quad}$. It is more efficient to remove the largest perfect square factor or perfect cube factor. Remember your perfect squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400; perfect cubes: 1, 8, 27, 64, 125, 216, 343, 512, 729, 1000.

Examples:

1. $\sqrt{12} = \sqrt{4 \cdot 3} = \sqrt{4} \cdot \sqrt{3} = 2 \cdot \sqrt{3} = 2\sqrt{3}$

2. $\sqrt{48} = \sqrt{16 \cdot 3} = \sqrt{16} \cdot \sqrt{3} = 4 \cdot \sqrt{3} = 4\sqrt{3}$

3. $\sqrt[3]{54} = \sqrt[3]{27 \cdot 2} = \sqrt[3]{27} \cdot \sqrt[3]{2} = 3 \cdot \sqrt[3]{2} = 3\sqrt[3]{2}$

4. $\sqrt[3]{648} = \sqrt[3]{216 \cdot 3} = \sqrt[3]{216} \cdot \sqrt[3]{3} = 6 \cdot \sqrt[3]{3} = 6\sqrt[3]{3}$

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Simplifying Radicals (page 2)

Simplify:

1. $\sqrt{8} =$

2. $\sqrt{20} =$

3. $\sqrt{50} =$

4. $-\sqrt{54} =$

5. $\sqrt{90} =$

6. $\sqrt{72} =$

7. $\sqrt{162} =$

8. $-\sqrt{300} =$

9. $\sqrt[3]{16} =$

10. $\sqrt[3]{500} =$

11. $\sqrt[3]{-512} =$

12. $\sqrt[3]{2000} =$

13. $\sqrt[3]{32} =$

14. $\sqrt[3]{1024} =$

15. $\sqrt[3]{-128} =$

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