

Name: KEY

Learning Target 1 – 2: Everything Radicals – V1

<u>Learning Target (L – T)</u>	<u>Procedural Context</u>
<p>1 – 2</p> <p>Radicals and Their Relationship to Roots and Exponents</p>	<ul style="list-style-type: none">• Understand how the number of identical factors relates to the index of the radical• Solving radical expressions without a calculator• Simplifying Irrational Radical Expressions<ul style="list-style-type: none">○ Using multiple techniques○ Difference between squares, cubes, etc.• Converting from Mixed to Entire Radicals• Breaking out of the root versus going back in

Self-Reflection for this Section of the Course. What challenges did you face in this Section?

What could improve moving forward?

Proficiency Outcome and Feedback

Your Level of Understanding of this Learning Target is:

Feedback:

EMERGING LEVEL QUESTIONS

Determine the roots of the following **without a calculator**, show your steps. **Answer only is not enough.**

1. $\sqrt{1296}$

$30^2 = 900$ $40^2 = 1600$
 34 or $\begin{matrix} 36 \\ \hline 36 \end{matrix}$
 39

$\boxed{36}$

2. $\sqrt[3]{729}$

729
 \wedge
 $9 \quad 81$
 \wedge
 $9 \quad 9$

$\boxed{9}$

Simplify the following radicals.

3. $\sqrt{128}$

$4 \wedge 32$ $\sqrt{4 \cdot 4 \cdot 4 \cdot 2}$
 $4 \wedge 8$ $2 \cdot 2 \cdot 2 \sqrt{2}$
 $2 \cdot 4$

$\boxed{8\sqrt{2}}$

4. $\sqrt[3]{432}$

$\textcircled{2} \wedge 216$ $2 \cdot 8 \sqrt[3]{2}$
 $\textcircled{2} \wedge 108$
 $\textcircled{2} \wedge 54$
 $6 \wedge 9$
 $\textcircled{2} \textcircled{3} \textcircled{3}$

$\boxed{6\sqrt[3]{2}}$

Express the following as **entire radicals**.

5. $2\sqrt{17}$

$\sqrt{4 \cdot 17}$
 $\boxed{\sqrt{68}}$

6. $-2\sqrt[3]{5}$

$\sqrt[3]{-40}$

PROFICIENT LEVEL QUESTIONS

Which of the following radicals are simplified? Provide some form of justification.

7. $\sqrt{21}, \sqrt{24}, \sqrt{28}, \sqrt{32}$

8. $\sqrt[3]{16}, \sqrt[3]{24}, \sqrt[3]{250}, \sqrt[3]{36}$

Simplify the following radicals

9. $\sqrt{0.49}$

$$\frac{7}{10}$$

10. $\sqrt[5]{224}$

$$2^5 \sqrt[5]{7}$$

$2^5 \cdot 7 = 32 \cdot 7 = 224$
 $2^5 = 32$
 $7 = 7$
 $32 \cdot 7 = 224$

EXTENDING LEVEL QUESTIONS

Express the following as entire radicals.

11. $-5\sqrt{2} \cdot 2\sqrt{3}$

$$-\sqrt{50} \cdot \sqrt{12}$$

$$-\sqrt{600}$$

12. $3x\sqrt{2} \cdot 4y\sqrt{2}$

$$\sqrt{18x^2} \cdot \sqrt{32y^2}$$

$$\sqrt{576x^2y^2}$$

