**Unit 7: Factoring: Lesson 6: Operations with Radicals**

**Objectives:**

* I can add and subtract radicals
* I can multiply radicals
* I can add, subtract and multiply rational with irrational numbers

**Agenda:**

* Video
* Practice

**Focus Questions:**

* To what subset of real number does the product of a rational number and irrational number belong? and why?
* Explain the similarities between adding and multiplying variables and radicals

**Vocabulary:**

* **Radicals, Radican, index**

**Homework: HW 7-6**

 Factoring February:

|  |  |
| --- | --- |
| $$1) x^{2}+3x-18$$ | $$2) 10x^{2}+17x+6$$ |

**Factor completely using GCF, Conjugate pairs of DOPS and Guess and Check for trinomials:**

|  |  |
| --- | --- |
| $$3) 50-98x^{2}$$ | $$4) m^{2}-4$$ |

**Warm up: Log online:**

[**https://prezi.com/5nvvjafdrxq0/irrational-numbers/**](https://prezi.com/5nvvjafdrxq0/irrational-numbers/)

**Define in your own words rational vs irrational and provide some concrete examples;**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer the following questions based on the operation: Base your responses on calculations.**

|  |
| --- |
| 1. Ra times Irra rational Irrational
 |
| 1. rational Irrational
 |
| 1. rational Irrational
 |
| 1. rational Irrational
 |

**Make sure you justify:**

|  |
| --- |
| 1. rational Irrational
 |
| 1. rational Irrational
 |
| 1. rational Irrational
 |

**Day 2 Radicals: SIMPLIFY Radicals:**

**1.** $ \sqrt{20} =$ 2. $ -3\left(\sqrt{12}\right)=$ 3. $ 3 \sqrt{18}= $

Play this first: <https://www.youtube.com/watch?v=PMam2c_eXj4>

Now let’s take a look at these:

4. $\sqrt{5} \left(\sqrt{2}\right)=$ 5. $\sqrt{5} \left(\sqrt{3}\right)=$ 6. $-\sqrt{3} \left(\sqrt{12}\right)=$

**7**$. \left(2\sqrt{3}\right)\left(4\sqrt{3}\right)$ 8. $ \left(-6\sqrt{5}\right)\left(4\sqrt{2}\right)$ 9. $ \left(-4\sqrt{7}\right)\left(3\sqrt{4}\right)$

**Adding and Subtracting Radicals**

[**https://www.youtube.com/watch?v=QsHJStWF-MM**](https://www.youtube.com/watch?v=QsHJStWF-MM)

1. $ 2\sqrt{3}+4\sqrt{3} $ 2. $9\sqrt{2}-4\sqrt{2}$ 3. $3\sqrt{10}-7\sqrt{10}$

 4.  5.  6. $2\sqrt{50}+\sqrt{8}$

**7.  8. **

 Stop: play this video first: <https://www.youtube.com/watch?v=DjUAL43NYos>

 7.  8.  9. 

10.

Play here: <https://www.quia.com/pop/37541.html?AP_rand=412904526>

Name:: \_\_\_\_\_\_\_\_\_\_\_\_ Homework 7-6 Multiple Choice:

1. $\sqrt{2}+\sqrt{2}$
2. 2 b. $2\sqrt{2}$ c. $\sqrt{4}$ d. $4\sqrt{2}$
3. $3\sqrt{5}+4\sqrt{5}$
4. $7\sqrt{10}$ b. $12\sqrt{10}$ c. $12\sqrt{5}$ d. $7\sqrt{5}$
5. $\sqrt{20}+\sqrt{45}$
6. $5\sqrt{5}$ b. $6\sqrt{5}$ c. $7\sqrt{5}$ d. $13\sqrt{5}$
7. $\sqrt{8}+\sqrt{18}-\sqrt{32}$
8. $-\sqrt{6}$ b. $\sqrt{2}$ c. $\sqrt{6}$ d. $4\sqrt{2}$
9. $8\sqrt{7}-9\sqrt{7}-3\sqrt{7}+4$

a. $-4\sqrt{7}+4$ b. $-4\sqrt{21}+4$ c. $\sqrt{7}$ d. $\sqrt{21}$

 6. Given the following expressions: Which expression(s) result in an irrational number? Justify:

I  II.  III.  IV. 

1. II, only b. III, only c. I, III, IV d. II, III, IV
	1. Is the sum of 3 and 4 rational or irrational? Explain your answer.

