LESSON MAKER PRO

Radical Remix

Simplify and operate with radical expressions.

HIGH SCHOOL · MA.912.NSO.1.5

MA.912.NSO.1.5 "Add, subtract, multiply and divide algebraic expressions involving radicals."

NAME _____ DATE _____

COMBINE, MULTIPLY, DIVIDE

Simplify each radical before you combine terms. You can add or subtract only terms with the same radical. When multiplying, multiply coefficients and radicals. When dividing, divide common factors when possible.

WORKED EXAMPLE

Simplify: 19sqrt23 - 13sqrt23

1. Both terms have sqrt23.
2. Subtract the coefficients: (19 - 13)sqrt23.
3. 6sqrt23

Answer: 6sqrt23

PRACTICE 6 problems

1 Simplify: 7sqrt5 + 4sqrt5

ANSWER _____

2 Simplify: sqrt48 - sqrt12

ANSWER _____

3 Simplify: (3sqrt2)(5sqrt7)

ANSWER _____

4 Simplify: (sqrt5 + sqrt3)(sqrt5 - sqrt3)

ANSWER _____

5 Simplify: (20sqrt15)/(4sqrt3)

ANSWER _____

6 Simplify: (12sqrt14)/(4sqrt14)

ANSWER _____

APPLY IT Show your work

1 A robotics team makes a square practice mat with side length sqrt50 + sqrt8 meters. What is the perimeter of the mat?

WORK SPACE

ANSWER _____

2 The media club has 12sqrt18 meters of fiber-optic cable. It divides the cable equally among 4 camera stations. How much cable does each station receive?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Simplify completely: (sqrt12 + sqrt27)/sqrt3

WORK SPACE AND ANSWER

ANSWER KEY # Radical Remix

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Simplify: 7sqrt5 + 4sqrt5	**11sqrt5**
2	Simplify: sqrt48 - sqrt12	**2sqrt3**
3	Simplify: (3sqrt2)(5sqrt7)	**15sqrt14**
4	Simplify: (sqrt5 + sqrt3)(sqrt5 - sqrt3)	**2**
5	Simplify: (20sqrt15)/(4sqrt3)	**5sqrt5**
6	Simplify: (12sqrt14)/(4sqrt14)	**3**

PART 2 · APPLY IT

1. **28sqrt2 meters** Simplify the side length to 7sqrt2 meters. Multiply by 4 sides to get 28sqrt2 meters.
2. **9sqrt2 meters** Divide to get 3sqrt18 meters per station. Simplify sqrt18 to 3sqrt2, giving 9sqrt2 meters.

CHALLENGE

5

Accept equivalent simplified radical forms. Require students to simplify radicals and combine only like radical terms before giving a final answer.