

Accuplacer Study Modules

TOPIC: Multiplying Radicals

Khan Academy Link: <https://www.khanacademy.org/math/algebra-basics/quadratics-polynomials-topic/multiplying-binomials-core-algebra/v/multiplying-binomials-with-radicals>

Sample Problem #1: Multiply $2\sqrt{2} \cdot 5\sqrt{10}$

To multiply radicals all you have to do is multiply the outside numbers by each other and the radicands by each other. Don't forget to simplify the resulting radical if possible!

$$2\sqrt{2} \cdot 5\sqrt{10}$$

$$2 \cdot 5\sqrt{2 \cdot 10}$$

$$10\sqrt{20}$$

$$10\sqrt{4 \cdot 5}$$

$$10 \cdot 2\sqrt{5}$$

$$20\sqrt{5}$$

This radical can be simplified!

Sample Problem #2: Multiply $(3 + 2\sqrt{5})(4 - 5\sqrt{6})$

When multiplying radicals in binomial form you can use the distributive property or FOIL.

$$(3 + 2\sqrt{5})(4 - 5\sqrt{6})$$

$$12 - 15\sqrt{6} + 8\sqrt{5} - 10\sqrt{30}$$

Since no radicals can be simplified and there are no like radicands to combine, this is your final answer!

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Instructions: Perform the indicated operation.

1. $-3\sqrt{5} \cdot 6\sqrt{8}$

2. $5\sqrt{7} \cdot 2\sqrt{7}$

3. $(3 + 2\sqrt{5})(4 + \sqrt{7})$

4. $(2 - 4\sqrt{3})(6 + 3\sqrt{6})$