

## Algebra RH

**Essential Question:** How do we multiply radical expressions?

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**Do Now:** Using your calculator, multiply the following radical expressions.

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

b.  $(3\sqrt{6})(5\sqrt{2})$

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### Multiplying Square-Root Radicals

**Rule:**

- Multiply the coefficients to find the coefficient of the product.
- Multiply the radicands to find the radicand product.
- Simplify the result, if possible.

**Examples:**

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

b.  $(3\sqrt{6})(5\sqrt{2})$

**Simplify the expression.**

1.  $\sqrt{3} \cdot \sqrt{3}$

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

3.  $\sqrt{a} \cdot \sqrt{a}$

4.  $(2\sqrt{3})^2$

5.  $\sqrt{12} \cdot \sqrt{4}$

6.  $\sqrt{60} \cdot \sqrt{5}$

7.  $3\sqrt{6} \cdot \sqrt{3}$

8.  $(2\sqrt{27})(\sqrt{3})$

9.  $\sqrt{25x} \cdot \sqrt{4x}$

10.  $(\sqrt{y})^2$

11.  $2\sqrt{x} \cdot \sqrt{x^2y}$

12.  $x\sqrt{5x^3y} \cdot x\sqrt{5x^2y}$

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**Algebra RH****HW #**

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**Multiplying Radicals**

Recopy each expression onto a separate sheet of paper and simplify.

1.  $\sqrt{9} \cdot \sqrt{32}$

2.  $3\sqrt{5} \cdot 2\sqrt{4}$

3.  $4\sqrt{3x} \cdot 4\sqrt{4x}$

4.  $5\sqrt{4a} \cdot 2\sqrt{6a}$

5.  $3\sqrt{8a} \cdot 8\sqrt{3a}$

6.  $6\sqrt{9xy} \cdot 4\sqrt{2xy}$

7.  $2\sqrt{4x^3y} \cdot 3\sqrt{3a^2b^2}$

8.  $4\sqrt{9a^6b} \cdot 4\sqrt{9a^4b^4}$

9.  $2\sqrt{2a^6} \cdot 5\sqrt{3a^3b^5}$

10.  $3\sqrt{4x^3y} \cdot 4\sqrt{5x^5y^7}$

11.  $\sqrt{2x^4} \cdot \sqrt{10x^2y^2}$

12.  $4\sqrt{x^3} \cdot 3\sqrt{4x}$

13.  $\sqrt{xy} \cdot 2\sqrt{xy}$

14.  $x\sqrt{81} \cdot y\sqrt{36}$

15.  $2\sqrt{9x^2} \cdot 2\sqrt{4x^2}$

16.  $x\sqrt{3x} \cdot x\sqrt{2x^2}$

17.  $3\sqrt{2x^3} \cdot 3\sqrt{3x^2y^2}$

18.  $x\sqrt{5x^3y} \cdot x\sqrt{5x^2y}$

19.  $5\sqrt{2x^6y} \cdot 3\sqrt{3x^3y^5}$

20.  $2\sqrt{4x^3y} \cdot y\sqrt{x^5y^7}$