Multiplying Radical Expressions

Summary

1. We can multiply radical expressions by using many of the same properties used to multiply polynomial expressions.

We just multiply like radicals and simplify.

Example 1. Multiply each and simplify.

(a) $\sqrt{3}\left(5+\sqrt{30}\right)$

(b) $\sqrt{5}\left(2-\sqrt{15}\right)$

(c) $\left(\sqrt{5}-\sqrt{6}\right)\left(\sqrt{7}+1\right)$

(d) $\left(\sqrt{2}-\sqrt{5}\right)\left(\sqrt{6}+2\right)$

Example 2. Multiply each and simplify.

(a) $(7\sqrt{x}+5)\left(3\sqrt{x}-\sqrt{5}\right)$

(b) $\left(4\sqrt{3}-1\right)^2$

(c) $\left(\sqrt{2x}-5\right)\left(\sqrt{2x}+5\right)$