Adding and Subracting Radicals

Like Radicals:

Radicals with the same radicand and same index are called like radicals and can be added or subtracted.

Ex: $2\sqrt{7}$ *and* $4\sqrt{7}$ *are LIKE RADICALS.*

$2\sqrt{7}+4\sqrt{7}=(2+4)\sqrt{7}=6\sqrt{7}$

$4\sqrt[3]{5}$ *and* $6\sqrt[3]{5}$ *are LIKE RADICALS.*

$4\sqrt[3]{5}-6\sqrt[3]{5}=(4-6)\sqrt[3]{5}=-2\sqrt[3]{5}$

Note:

Adding radicals is like adding polynomials!

$2x+4x=6x$

Examples:

1. Add or subtract the following, state the restrictions:

a) $-\sqrt{10}+4\sqrt{10}$

b) $2\sqrt{6}-5\sqrt{6}$

c) $-5\sqrt{12}-2\sqrt{75}+\sqrt{300}$

d) $3\sqrt{x}+5\sqrt{x}-\sqrt{x}$

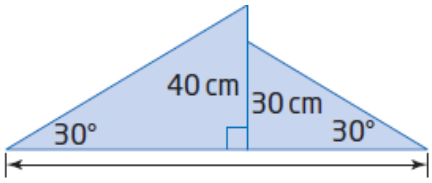
e) $\sqrt{8x^5}+3\sqrt{50x^5}$

f) $5\sqrt{x^6}+2\sqrt{y^4}-\sqrt{x^6}+4\sqrt{y^4}$

3. Application of Radical Expressions

(Example 5, p. 277)

Consider the design shown for a skateboard ramp.
What is the exact distance across the base?



Key Ideas p. 278

Assign p. 278-281 #'s 8(acd), 9(abd), 10(abc), 19