5.1b Radicals

* To compare radicals, write them in their [   ] and compare the
[   ] They must have the same index.

ex. put the following in increasing order:

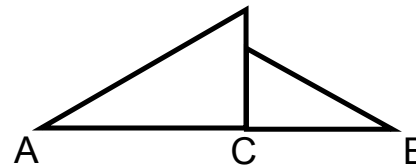$$5 \qquad 3\sqrt{3} \qquad 2\sqrt{6} \qquad \sqrt{23}$$

* to add radicals, you must group [   ]

ex. a) $2\sqrt{7} + 8\sqrt{7}$ c) $\sqrt{20x} - 3\sqrt{45x}$

b) $\sqrt{24} - \sqrt{6}$

ex. Calculate length AB exactly

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Definition: a radical in simplified form has the following properties

    * the radicand contains no [ ]

    * there are no perfect roots left as [ ] of the radicand

    * there is no radical in the [ ]

ex.   a)   b)

Property: A radical with an [ ] can only represent a real number if the radicand is [ ] There are no restrictions on radicals with odd indexes.

ex. a) $\sqrt{-3}$ b) $\sqrt[3]{-27}$

   * for $\sqrt{16 - x}$ to be a real number, $16 - x \geq 0$

   * $\sqrt[3]{16 - x}$ will always be a real number

   * Recall: when multiplying or dividing an inequality by a negative number, you MUST change the sign of the inequality.

   ex.

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