Bellwork Alg 2A Wednesday, February 1, 2017

Simplifying Square Roots.

Below is a parial list of Perfect Squares: $1, 4, 9, 16, 25, 36, 49, 64, 81, 100\ldots$

These are the numbers used when Simplifying Square Roots.

If the number under the square root symbol (radicand) is not a perfect square, then to simplify the square root means to factor that number into two factors where one of them is the biggest perfect square you can find. At this point you take the square root of the perfect square and this becomes the coefficient of the answer. The other factor stays under the square root symbol.

Example: Simplify $\sqrt{12}$ since 12 is not a perfect square we write it this way: $\sqrt{12} = \sqrt{4 \cdot 3}$ because 4 is the biggest perfect square that is a factor of 12. We then take the square root of 4 and write the answer this way: $\sqrt{12} = 2\sqrt{3}$

Simplify each square root.

1. $\sqrt{24}$
2. $\sqrt{72}$
3. $\sqrt{54}$
4. $\sqrt{48}$
5. $\sqrt{288}$

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Example: Simplify $\sqrt{12}$ since 12 is not a perfect square we write it this way: $\sqrt{12} = \sqrt{4 \cdot 3}$ because 4 is the biggest perfect square that is a factor of 12. We then take the square root of 4 and write the answer this way: $\sqrt{12} = 2\sqrt{3}$

Simplify each square root.

ANSWERS

1. $\sqrt{24}$
   $= \sqrt{4 \cdot 6}$
   $= 2\sqrt{6}$
2. $\sqrt{72}$
   $= \sqrt{36 \cdot 2}$
   $= 6\sqrt{2}$
3. $\sqrt{54}$
   $= \sqrt{9 \cdot 6}$
   $= 3\sqrt{6}$
4. $\sqrt{48}$
   $= \sqrt{16 \cdot 3}$
   $= 4\sqrt{3}$
5. $\sqrt{288}$
   $= \sqrt{144 \cdot 2}$
   $= 12\sqrt{2}$