Lesson 12-1

Example 1 Estimate a Square Root
Estimate $\sqrt{30}$ to the nearest whole number.

List some perfect squares.
1, 4, 9, 16, 25, 36, …

$25 < 30 < 36$ 30 is between the perfect squares 25 and 36.
$\sqrt{25} < \sqrt{30} < \sqrt{36}$ Find the square root of each number.
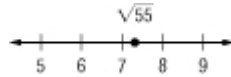$5 < \sqrt{30} < 6$ $\sqrt{25} = 5$ and $\sqrt{36} = 6$

So, $\sqrt{30}$ is between 5 and 6. Since 30 is closer to 25 than to 36, the best whole number estimate is 5. Verify with a calculator

Example 2 Use a Calculator to Estimate
Use a calculator to find the value of $\sqrt{55}$ to the nearest tenth.

$\sqrt{55} = 7.416198487$

$\sqrt{55} \approx 7.4$

Check $7^2 = 49$ and $8^2 = 64$. Since 55 is between 49 and 64, the answer, 7.4, is
         reasonable.