Name _____ Date Answer Key

Approximating Square Roots

If you have a number that's not a perfect square, you can approximate its square root by finding the two whole numbers that the square root falls between.

Try it! Approximate $\sqrt{22}$.

Since 22 is not a perfect square, approximate $\sqrt{22}$ by first finding the two nearest perfect squares. The perfect square just below 22 is 16. The perfect square just above 22 is 25.

$16 < 22 < 25$

Now, find the square roots of the perfect squares.

$\sqrt{16} < \sqrt{22} < \sqrt{25}$

Since $\sqrt{16} = 4$ and $\sqrt{25} = 5$, $\sqrt{22}$ must be **between 4 and 5**.

$4 < \sqrt{22} < 5$

Approximate each square root by finding the two whole numbers that it falls between.

1. $\sqrt{8}$ is between 2 and 3.
2. $\sqrt{28}$ is between 5 and 6.
3. $\sqrt{10}$ is between 3 and 4.
4. $\sqrt{58}$ is between 7 and 8.
5. $\sqrt{117}$ is between 10 and 11.
6. $\sqrt{39}$ is between 6 and 7.
7. $\sqrt{45}$ is between 6 and 7.
8. $\sqrt{84}$ is between 9 and 10.
9. $\sqrt{66}$ is between 8 and 9.
10. $\sqrt{19}$ is between 4 and 5.
11. $\sqrt{130}$ is between 11 and 12.
12. $\sqrt{104}$ is between 10 and 11.

Challenge yourself! Approximate $\sqrt{50}$ by finding the two whole numbers that it falls between. Which number do you think $\sqrt{50}$ is closer to? Explain your reasoning.

Sample answer: $\sqrt{50}$ is between 7 and 8. Since 50 is closer to 49 than it is to 64, you would expect $\sqrt{50}$ to be closer to $\sqrt{49}$ or 7.