Name _____   Date _____

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 _____ and _____ .

2 $\sqrt{28}$ is between _____ and _____ .

3 $\sqrt{10}$ is between _____ and _____ .

4 $\sqrt{58}$ is between _____ and _____ .

5 $\sqrt{117}$ is between _____ and _____ .

6 $\sqrt{39}$ is between _____ and _____ .

7 $\sqrt{45}$ is between _____ and _____ .

8 $\sqrt{84}$ is between _____ and _____ .

9 $\sqrt{66}$ is between _____ and _____ .

10 $\sqrt{19}$ is between _____ and _____ .

11 $\sqrt{130}$ is between _____ and _____ .

12 $\sqrt{104}$ is between _____ and _____ .

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.

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