Name: _____ Date: _____

Locate each positive irrational number on the number line using rational approximations. First tell which two whole numbers the square root is between.

4. $\sqrt{8}$

5. $\sqrt{6}$

6. $\sqrt{23}$

7. $\sqrt{32}$

Locate each negative irrational number on the number line using rational approximations. First tell which two integers the square root is between.

Example

$-\sqrt{11}$

Because $3^2 = 9$ and $4^2 = 16$, $\sqrt{11}$ is between 3 and 4, and $-\sqrt{11}$ is between -3 and -4.

Step 1

Find an approximate value for $-\sqrt{11}$ by using a calculator: $-\sqrt{11}$ = $-3.31662479...$

$-\sqrt{11}$ lies between the tenths -3.3 and -3.4. So, $-3.4 < -\sqrt{11} < -3.3$.

Step 2

Graph the interval from -3.3 to -3.4 on a number line.

Step 3

Use the approximate value of $-\sqrt{11}$ with 2 decimal places.

The value of $-\sqrt{11}$ with 2 decimal places is -3.32.

-3.32 is closer to -3.3 than to -3.4. So, $-\sqrt{11}$ is located closer to -3.3.

Step 4

Use -3.32 to locate $-\sqrt{11}$ approximately on the number line.