Worked answers | Real numbers

Placing real numbers on number lines

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Give consecutive integer bounds for $\sqrt{19}$. [2 marks]

$16 < 19 < 25$.

Answer: $4 < \sqrt{19} < 5$.

2. Order 1.4, $\sqrt{2}$ and 3/2. [2 marks]

$1.4^2 = 1.96 < 2 < 2.25 = 1.5^2$.

Answer: $1.4 < \sqrt{2} < 3/2$.

3. Give consecutive integer bounds for $-\sqrt{6}$. [2 marks]

$2 < \sqrt{6} < 3$; reflect in zero.

Answer: $-3 < -\sqrt{6} < -2$.

4. Which is larger: $\sqrt{10}$ or 3.2? Explain without rounding the root. [2 marks]

Both are nonnegative and $3.2^2 = 10.24 > 10$.

Answer: 3.2.

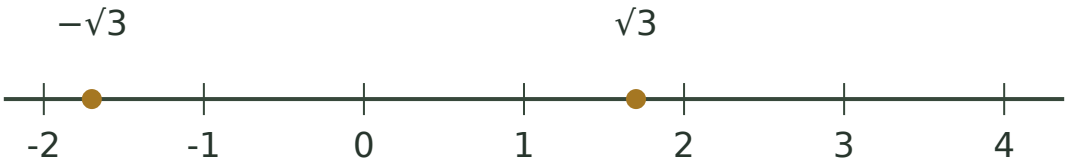
5. Order -1.6, $-\sqrt{2}$, $-3/2$ and 0. [3 marks]

$3/2 = 1.5$ and $1.4 < \sqrt{2} < 1.5$.

Reverse the positive order for the negative magnitudes.

Answer: $-1.6 < -3/2 < -\sqrt{2} < 0$.

6. On the supplied number line mark $\sqrt{3}$ and $-\sqrt{3}$ to about one decimal place. [3 marks]



$\sqrt{3} = 1.732\ldots$

Answer: Near 1.7 and -1.7.