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 $\frac{3}{2}$. [2 marks]

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

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

**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 $-1.6$, $-\sqrt{2}$, $-\frac{3}{2}$ and $0$. [3 marks]

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

Reverse the positive order for the negative magnitudes.

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

**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 $-1.7$.