

1 Which of the following numbers are rational numbers, and which are irrational numbers? State your reasons:

1 -12

2 $\sqrt{25}$

3 $\sqrt{13}$

4 $\sqrt[3]{-27}$

5 $2\frac{2}{5}$

6 $-\sqrt[3]{10}$

7 0.125

8 $3.\bar{6}$

9 $\sqrt{6}$

10 $\frac{12}{31}$

11 $\sqrt{\frac{4}{9}}$

12 $\frac{\pi}{2}$

13 φ

14 $-\sqrt[3]{64}$

15 $0.323232\dots$

16 0

17 $-\sqrt{121}$

18 17%

19 $\sqrt[3]{16}$

20 $\sqrt{9} + \sqrt{16}$

21 $\sqrt{11} - \sqrt{4}$

22 $(-5)^0$

23 $\sqrt[3]{|-64|}$

24 $\sqrt{5} + 1$

2 Put the appropriate symbol $\in$ or $\notin$ in the empty box:

1 $0.\bar{63} \square \mathbb{Q}$

2 $\sqrt{5} \square \mathbb{R}$

3 $|-4| \square \mathbb{N}$

4 $\sqrt[3]{3\frac{3}{8}} \square \mathbb{Z}$

5 $\sqrt[3]{3} \square \mathbb{Q}$

6 $\sqrt{-1} \square \mathbb{R}$

3 Write all possible sets of the number sets ($\mathbb{N}$, $\mathbb{Z}$, $\mathbb{Q}$, $\mathbb{Q}$, $\mathbb{R}$) to which each of the following numbers belongs:

1 $\sqrt{10}$

2 $\sqrt{100}$

3 $0.\bar{25}$

4 $-\sqrt[3]{8}$

5 $\sqrt[3]{9}$

4 Find two consecutive integers between which each of the following numbers lies and determine its approximate location on the number line:

1 $\sqrt{5}$

2 $\sqrt{13}$

3 $-\sqrt{11}$

4 $\sqrt[3]{14}$

5 $\sqrt[3]{-20}$

6 $-\sqrt{95}$

5 If x is a real number, find the value of x in each of the following cases:

1 $x < \sqrt{2} < x + 1$

2 $x < \sqrt{80} < x + 1$

3 $x < \sqrt[3]{50} < x + 1$

4 $x < \sqrt[3]{-100} < x + 1$