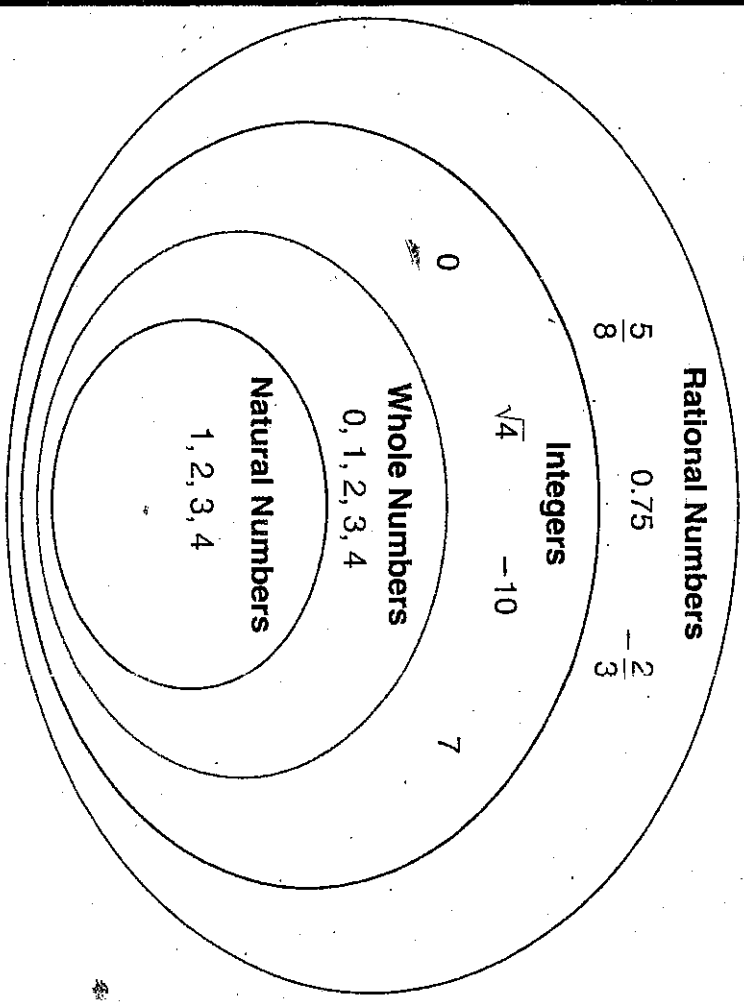
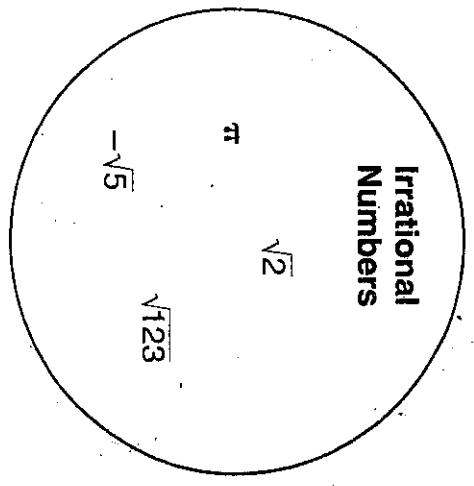


REAL NUMBERS



A rational number is any number you can write in the form $\frac{a}{b}$ (a and b are integers. $b \neq 0$).



An irrational number cannot be written as a ratio of two integers.

Tell whether you think the following numbers are Rational or Irrational.

11. $\sqrt{8}$

$$\begin{array}{c} \sqrt{8} \\ \uparrow \\ 2 \cdot 4 \\ \uparrow \\ 2 \cdot 2 \end{array}$$

$$\sqrt{2 \cdot 2 \cdot 2} = 2\sqrt{2}$$

Circle One: Rational Irrational

12. $\sqrt{2 + \sqrt{49}}$

$$\begin{array}{c} \sqrt{2 + \sqrt{49}} \\ \sqrt{2 + 7} \\ \sqrt{9} \\ 3 \end{array}$$

Circle One: Rational Irrational

13. $2\sqrt{27} - \sqrt{3} - \sqrt{75}$

$$\begin{array}{c} \left(\begin{array}{c} \uparrow \\ 3 \end{array} \right)^2 \cdot 9 \\ \left(\begin{array}{c} \uparrow \\ 3 \end{array} \right)^2 \cdot 25 \\ \left(\begin{array}{c} \uparrow \\ 3 \end{array} \right)^2 \cdot 3 \end{array}$$

$$2\sqrt{3 \cdot 3 \cdot 3} - \sqrt{3} - 5\sqrt{3} = 0 = \frac{0}{4}$$

Circle One: Rational Irrational

14. $\pi \approx 3.1415926535 \dots$

15. $\sqrt{12} \cdot \sqrt{3} = \sqrt{36} = 6$

16. e^2

Circle One: Rational Irrational

Circle One: Rational Irrational

Circle One: Rational Irrational

17. $\sqrt[3]{64}$

18. $\sqrt[3]{24}$

19. $3.23131\overline{31}$

Repeating = Rational

Circle One: Rational Irrational

Circle One: Rational Irrational

Circle One: Rational Irrational

20. $3.12112111211112 \dots$

21. $\phi = \frac{1+\sqrt{5}}{2} \approx 1.618034 \dots$

22. $81^{-\frac{3}{4}}$

Circle One: Rational Irrational

Circle One: Rational Irrational

Circle One: Rational Irrational