Maths

Identify rational and irrational numbers

Miss Parnham

Identify rational and irrational numbers

1. Sort the values into integers and non-integers.

$$\frac{4}{10} \qquad 0.5 \qquad \frac{56}{14} \qquad -7$$

$$13 \qquad -\frac{24}{3} \qquad 2.5 \qquad -\frac{75}{15}$$

Integers	Non-integers

2. Sort the numbers into the Venn diagram.
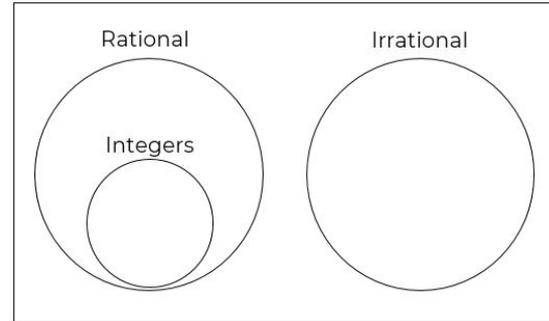
$$\frac{3}{4} \qquad \sqrt{9} \qquad -\frac{12}{1} \qquad \pi$$

$$\sqrt{2} \qquad \frac{-5}{35} \qquad 0.125 \qquad \sqrt{\frac{36}{12}}$$

Rational   Irrational

Integers

Identify rational and irrational numbers

3. Which of these are surds?

$$\sqrt{7} \qquad \sqrt{64} \qquad \frac{\sqrt{36}}{\sqrt{4}} \qquad \sqrt{8}$$

$$3\sqrt{2} \qquad \frac{1}{\sqrt{25}} \qquad -\sqrt{16} \qquad \frac{\sqrt{6}}{2}$$

Explain your reasons.

4. Give an example of a number between 5 and 6 which is

a) rational

b) irrational

Show working to justify your answers.

5. Which equation has a rational solution?

$$3x^2 = 120 \qquad \frac{2}{5}x^2 = 160 \qquad \frac{x^2}{4} = 50$$

3

Answers

Identify rational and irrational numbers

1. Sort the values into integers and non-integers.

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$$\frac{4}{10} \qquad 0.5 \qquad \frac{56}{14} \qquad -7$$

$$13 \qquad -\frac{24}{3} \qquad 2.5 \qquad \frac{-75}{15}$$

Integers	Non-integers
-7 13 $\frac{56}{14}$ $\frac{-75}{15}$ $-\frac{24}{3}$	$\frac{4}{10}$ 0.5 2.5

2. Sort the numbers into the Venn diagram.
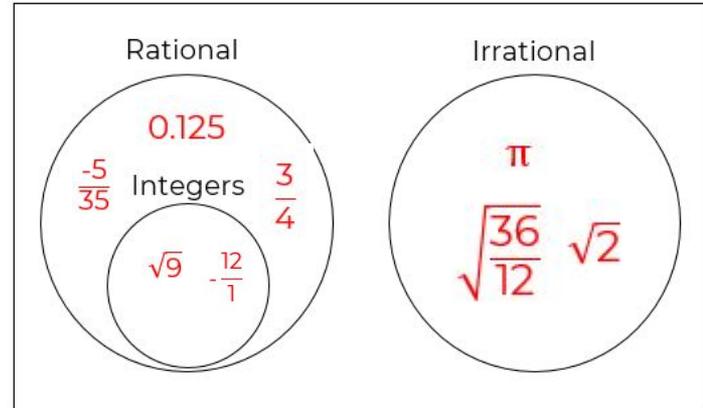
$$\frac{3}{4} \qquad \sqrt{9} \qquad -\frac{12}{1} \qquad \pi$$

$$\sqrt{2} \qquad \frac{-5}{35} \qquad 0.125 \qquad \sqrt{\frac{36}{12}}$$

Rational: 0.125, $\frac{-5}{35}$, $\frac{3}{4}$, Integers ($\sqrt{9}$, $-\frac{12}{1}$)

Irrational: π, $\sqrt{\frac{36}{12}}$, $\sqrt{2}$

Identify rational and irrational numbers

3. Which of these are surds?

$\sqrt{7}$ $\sqrt{64}$ $\dfrac{\sqrt{36}}{\sqrt{4}}$ $\sqrt{8}$

$3\sqrt{2}$ $\dfrac{1}{\sqrt{25}}$ $-\sqrt{16}$ $\dfrac{\sqrt{6}}{2}$

Explain your reasons.

4. Give an example of a number between 5 and 6 which is

a) Rational   e.g. 5.2

b) Irrational   e.g. $\sqrt{30}$

Show working to justify your answers.

5. Which equation has a rational solution?

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$3x^2=120$ $\dfrac{2}{5}x^2=160$ $\dfrac{x^2}{4}=50$