
National
Pi
Day
MGN

Pi Rant

https://www.youtube.com/watch?v=5iUh_CSjaSw

Rational Numbers

What makes a number rational?

Rational

Rational Numbers are all about RATIOS

A number is **rational** if it can be written as the **ratio** of two integers.

(Integers: Positive and negative whole numbers)

Examples of rational numbers:

Whole Numbers

$\frac{6}{6} = 1$

$\frac{1}{1} = 1$

Is 27 rational? $\frac{27}{1}$

Yes!

You can always make a ratio of a whole number by putting it over 1.

Terminating Decimals

$27.5 = \frac{275}{10} = \frac{55}{2}$

$1.5 = \frac{15}{10}$ $\quad 3.25 = \frac{325}{100} = \frac{3.25}{1}$

$20.75 = \frac{2075}{100}$ $\quad \frac{2075}{100} = \frac{20.75}{1}$

$0.062 = \frac{62}{1000}$ $\quad \frac{47.629}{1} = \frac{47629}{1000}$

For a terminating decimal, use powers of 10 in the denominator of the fraction.

Repeating Decimals

$.\overline{44} = \frac{4}{9}$ $.\overline{66} = \frac{2}{3} = \frac{6}{9}$ $.\overline{81} = \frac{81}{99} = \frac{9}{11}$

$.\overline{36} = \frac{36}{99} = \frac{4}{11}$ $.\overline{125} = \frac{125}{999}$

Can you find others?

$0.\overline{7} = \frac{7}{9}$ $0.\overline{48} = \frac{48}{99}$ $0.\overline{41} = \frac{41}{99}$

$0.\overline{2468} = \frac{2468}{9999}$

Irrational Numbers

$\sqrt{2}$ π $\sqrt{11}$

$\sqrt{17}$ $\sqrt{24}$ $\sqrt{x}$

$\sqrt{30}$

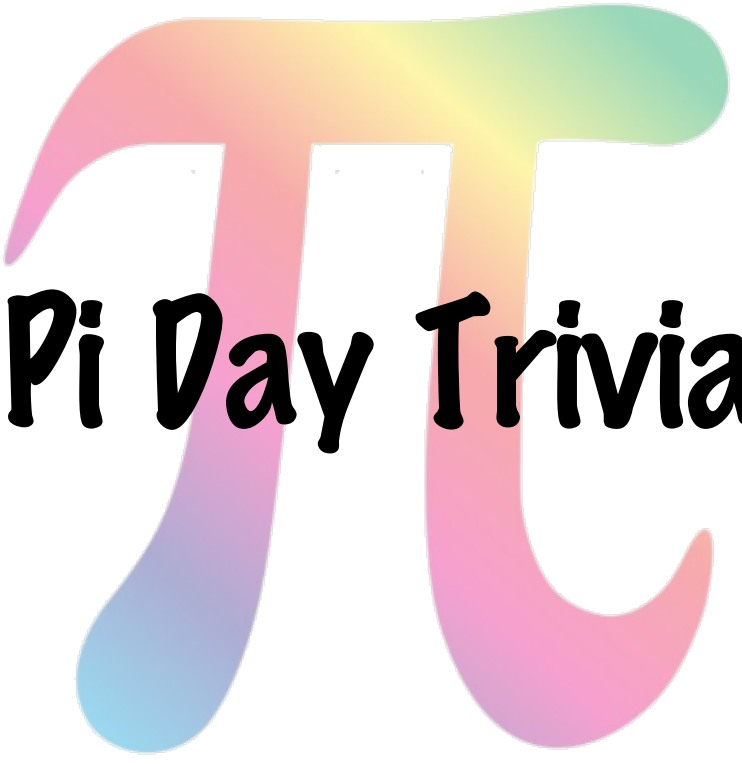
$\sqrt{7}$

If # under radical sign is a perfect square it is rational.

Perfect Squares:

81, 144, 16, 49

9, 25, 36, 4



Pi Day Trivia

Homework

How Do Golf Balls Get Around?

Indicate whether each statement is true (T) or false (F) by circling the appropriate letter next to it. Write this letter in the box containing the exercise number. If the statement is false, explain why or give a counterexample.

	T	F
1 Any number that can be expressed as the ratio of two integers, $\frac{a}{b}$, where $b \neq 0$, is a rational number. *If false, explain:*	R	K
2 Each of these numbers is a rational number: $-4.3 \quad \frac{4}{19} \quad 7.66 \quad -5\frac{2}{3}$ *If false, explain:*	E	O
3 Assume that the denominator of a fraction is not zero. When you divide the numerator by the denominator, you always get a decimal that ends (a terminating decimal). *If false, explain:*	P	I
4 Assume that the denominator of a fraction is not zero. When you divide the numerator by the denominator, you always get either a decimal that terminates or a decimal with a digit or block of digits that repeats again and again (a repeating decimal). *If false, explain:*	D	U
5 Every terminating decimal can be expressed as the ratio of two integers, $\frac{a}{b}$, with $b \neq 0$. Therefore, every terminating decimal is a rational number. *If false, explain:*	E	L
6 Every repeating decimal can be expressed as the ratio of two integers, $\frac{a}{b}$, with $b \neq 0$. Therefore, every repeating decimal is a rational number. *If false, explain:*	T	S
7 Each of these decimals represents a rational number: $0.121212 \quad 0.1212121212121212\ldots \quad 0.12122122212222122222\ldots$ *If false, explain:*	A	E
8 The square root of a whole number is always an integer. *If false, explain:*	R	Y
9 The square root of a whole number is always a rational number. *If false, explain:*	D	N
10 The square root of a whole number is either an integer or an irrational number. *If false, explain:*	H	O
11 Each of these square roots is a rational number: $\sqrt{4} \quad -\sqrt{169} \quad \sqrt{81} \quad \sqrt{80}$ *If false, explain:*	T	A
12 The square root of a fraction or decimal is always an irrational number. *If false, explain:*	S	V
13 Every point on the number line can be represented by either a rational or an irrational number. Together these two sets form the set of real numbers. *If false, explain:*	R	O

6	10	2	8	11	1	7	4	13	3	12	5	9