Name _____

Date _____Pd_____

RATIONAL VS. IRRATIONAL NUMBERS

Mrs. Mayo wrote a few examples of rational and irrational values on the board. Record any observations and predictions about what might make a value "rational" or "irrational."

RATIONAL
15, 10.6, $\frac{3}{7}$

IRRATIONAL
2π, 5.621..., $\sqrt{85}$

- Rational:

- Irrational:

The definitions below can help us classify any real number as rational or irrational.

RATIONAL NUMBERS	IRRATIONAL NUMBERS
• Can be written as a _____ • _____ & _____ decimals • Square roots of _____ squares	• Cannot be written as a _____ • _____ & _____ decimals • Square roots of _____ squares

Classify each given value as rational or irrational. Explain your choice in the last column.

VALUE	RATIONAL OR IRRATIONAL?	EXPLANATION
-12		
π		
0.6		
$\frac{7}{8}$		
0.123456...		
$0.\overline{33}$		
$\sqrt{20}$		
-1.75		
$-\sqrt{121}$		

Practice identifying rational and irrational numbers with the questions below.

1. Joseph wants to find the side length of a square that has an area of 150 square feet. Should his answer be rational or irrational? Explain.	2. Which value(s) from the following list of numbers is not a rational number? Explain. $8.224, \frac{5}{9}, \sqrt{25}, 0.\overline{321}, \sqrt{30}$
3. Brad converted $\frac{5}{11}$ to a decimal, and his result was a repeating decimal. Does this mean that the value is rational or irrational? Explain your answer.	4. Classify each value as rational or irrational: a. 3.4567 _____ b. 3.4567… _____ c. $3.456\overline{7}$ _____
5. Four students wrote the following expressions. Circle the name of any student who wrote an expression with a rational value. **CAROLYN** **ANTONIO** **HUNTER** **BELLA** $6 + \sqrt{30}$ $\sqrt{6 + 30}$ $\sqrt{6} + \sqrt{30}$ $\sqrt{36} + \sqrt{36}$	

Give an example of each of the following:

6. A rational number between 11 and 12:	7. An irrational value less than 0:
8. A square root that is rational:	9. An irrational number greater than 10:

Summarize today's lesson: