

IM2 – 1.3 (P – V1 Key) Rational & Irrational Numbers (Real Number System)

N.RN.3



Name: _____ Per: _____ Date: _____

Directions - (N.RN.3) Classify each number below. Use a calculator to verify your work.

Recall

- A **sum** is the total amount resulting from the addition of two or more numbers.
- A **product** is the total amount resulting from the multiplication of two or more numbers.

1. Complete the table, below.

Number	Terminating	Repeating	Neither	Rational	Irrational
-5	x			x	
$3\sqrt{2}$			x		x
$\frac{2}{3}$		x		x	
$\frac{1}{3}$		x		x	
$\sqrt{8}$			x		x
-3π			x		x
$\frac{3}{\sqrt{25}} = \frac{3}{5}$	x			x	

Directions - (N.RN.3) Complete the table below, using the numbers given in problem # 1. Use a calculator to verify your work. Reflect on your results in problems 3 & 4, below. Are the results always, sometimes, or never rational / irrational?

2. With your team, choose combinations...
 - a. of numbers (from the table on Pg 1) to classify the **result** of each solution.
 - b. of your own numbers, then classify the **result** of each solution.

	Sums			Products		
	Rational + Rational	Irrational + Irrational	Rational + Irrational	Rational • Rational	Irrational • Irrational	Rational • Irrational
Choose #'s from Table	$\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$ R	$3\sqrt{2} + \sqrt{8} = 7.07106$ I	$-5 + \sqrt{8} = 2.17157$ I	$\frac{1}{3} \cdot \frac{2}{3} = \frac{1}{9}$ R	$3\sqrt{2} \cdot \sqrt{8} = 3\sqrt{16} = 3(4) = 12$ R	$-5 \cdot \sqrt{8} = -14.14213$ I
Choose #'s from Table	$-5 + \frac{3}{5} = \frac{-25}{5} + \frac{3}{5} = \frac{-22}{5}$ R	$-3\pi + \sqrt{8} = -12.2532$ I	$-5 + (-3\pi) = -14.42477$ I	$-5 \cdot \frac{3}{5} = \frac{-15}{5} = -3$ R	$-3\pi \cdot \sqrt{8} = -26.6572$ I	$-5 \cdot (-3\pi) = 47.12388$ I
Choose Your Own #'s	$4 + 7 = 11$ R	$\sqrt{3} + \sqrt{12} = 5.19615$ I	$2 + \sqrt{3} = 3.73205$ I	$4 \cdot 7 = 28$ R	$\sqrt{3} \cdot \sqrt{12} = \sqrt{36} = 6$ R	$2 \cdot \sqrt{3} = 3.4641$ I

3. What do you notice about the sums of...

- a) Rational + Rational: Always Rational
- b) Irrational + Irrational: Always Irrational
- c) Rational + Irrational: Always Irrational

4. What do you notice about the products of...

- a) Rational • Rational: Always Rational
- b) Irrational • Irrational: Sometimes Irrational
- c) Rational • Irrational: Always Irrational