# IRRATIONAL NUMBERS

2012-2013

# Warm Up

- **Page 30:**
- **Write in Exponential Form:**

1. $n \times n \times n \times n =$
2. $(-8)(-8)(-8) =$
3. Evaluate: $(-4)^4$
4. Simplify: $99 - 3(4 \times 2^3)$
5. How many will be in the dish after 5 minutes?

# Correct Homework

- Page 34-35 #1-23 odds

# Irrational Numbers

- **Copy into your Spiral Notebook:**
  - Irrational numbers are numbers that are not rational (duh!)
  - They *cannot be written* in the form $\frac{a}{b}$, where $a$ and $b$ are integers and $b \neq 0$.
  - Square roots of integers that are not perfect squares are irrational numbers.
  - Other special numbers, like $\pi$ are also irrational.

# Video time

- We are going to watch two short videos.
  1) The first video is a review of squares and areas.
     1) *Please copy the problem that is demonstrated into your spiral notebook.*
  2) The second video is demonstrating how to estimate the square root of numbers that are not perfect squares.
     1) *Please copy the problem that is demonstrated into your spiral notebook.*

# Copy this perfect square chart into your spiral notebook:

$\sqrt{1} = 1$

$\sqrt{4} = 2$

$\sqrt{9} = 3$

$\sqrt{16} = 4$

$\sqrt{25} = 5$

$\sqrt{36} = 6$

$\sqrt{49} = 7$

$\sqrt{64} = 8$

$\sqrt{81} = 9$

$\sqrt{100} = 10$

$\sqrt{121} = 11$

# Exploration Time:

- Since 2 is not a perfect square, then $\sqrt{2}$ is irrational.
- Lets estimate the value of $\sqrt{2}$.
- What perfect squares does $\sqrt{2}$ lie between?

# Try This!!!

***Find an estimate for these square roots***

1. $\sqrt{11}$
2. $\sqrt{23}$
3. $\sqrt{45}$
4. $\sqrt{39}$
5. $\sqrt{75}$

# *Finding the estimate of the sums:*

- We need to find the values of each expression then identify which one is greater, smaller or equal to each other.

$3 + \sqrt{5}$ ☐ $\sqrt{3} + 5$,

which symbol $<, >$ or $=$ makes this statement true?

# Try This!!

***Apply the appropriate symbol to make the statements true: <, >, =***

1. $5 + \sqrt{8}$ ☐ $\sqrt{5} + 8$
2. $10 + \sqrt{2}$ ☐ $\sqrt{10} + 2$
3. $9 + \sqrt{16}$ ☐ $\sqrt{9} + 10$
4. $25 + \sqrt{5}$ ☐ $\sqrt{25} + 5$
5. $13 + \sqrt{9}$ ☐ $\sqrt{225} + 5^0$

# *Ordering Rational and Irrational numbers on a number line:*

- To order numbers on a number line in the correct order, you must convert each number to an estimated decimal value, then place all numbers in their appropriate places on a number line.

# Ordering Numbers

- *Order the following numbers in their corresponding location on the number line.*

$4, \sqrt[3]{27}, \pi, \sqrt{8}, \sqrt{\frac{36}{25}}$

# *Homework:*

1. P. 38 #1-20 odds *(due Monday 2/25)*
2. Also, you must have completed your: *Problem Solving* packet up to page 10 by Friday.
3. Make sure you have completed all past work, check grade printouts on board:
    1. Woodchip worksheet
    2. Treasure Map
    3. Retake exams (if needed)
    4. Module booklet pages.