

Name #1: \_\_\_\_\_ Period: \_\_\_\_\_

Name #2: \_\_\_\_\_ DUE: \_\_\_\_\_

## Quarter 1 PROJECT: My Life as a Rational Number FRAME

### Chapter 3 & 4: Integers & Rational Numbers



You've just been transformed into a rational number, but the rest of us do not recognize you. Help us get to know you!

#### The Set-up:

- With a partner (upon approval), draw a rational number from the bag. This is the number that you will become.
- Label the center of the frame with this number. (*Remember that a rational number is any number that can be written as a fraction.*)
- Label the four sections of your frame: Details, Patterns, Olympics, and Conflict.
- Your frame is the draft of your final product - a poster.
  - Be sure to use math terms such as denominator, numerator, opposite, reciprocal, ratio, probability, percent, and more throughout your project.
  - INCLUDE ALL WORK AND PROPER MATHEMATICAL SYMBOLS AND NOTATIONS.
  - ALL ANSWERS SHOULD BE EXPLAINED IN FULL SENTENCES.

#### 1. Tell us DETAILS about you: (10 points)

- Your rational number in words
- Your reciprocal
- Your decimal and percent equivalent
- Your absolute value
- Your opposite
- What happens if you add yourself to yourself
- What happens if you take yourself to the second power
- How you are divided into two equal parts
- Your rational number as money
- Rename your rational number as an unsimplified fraction



#### 2. Tell us PATTERNS you have: (8 points)

- Multiplication Patterns:
  - When you square yourself, what is your value?
    - Are you smaller or larger than your original value?
  - What happens if you cube yourself?
  - Order yourself, your square, and your cube from least to greatest.
- Division Patterns:
  - When you divide yourself by yourself, what is your value?
    - Are you smaller or larger than your original value?
  - What happens if you divide by yourself a third time?
  - Order yourself and the two quotients from least to greatest.

3. You are a runner in the OLYMPICS. You have a budget of \$5000 to buy your supplies and trip to Rio: (14 points) (this section should include one number line with appropriate labels for each item and new budget amount.) These steps need to be done in order.



- **Budget:** Where is your budget on the number line?  
Graph it on the number line.
- **Shoes:** You spend  $\frac{1}{8}$  of your budget on new running shoes. Graph how much you now have remaining on the number line.
- **Flight:** Your flight costs  $\frac{1}{5}$  of your remaining budget. Graph how much you now have remaining on the number line.
- **Hotel:** Your hotel costs half as much as your flight. Graph how much you now have remaining on the number line.
- **Trainer:** You have to pay for your personal trainer to come with you and their cost is \$3500. Graph how much you now have remaining on the number line.
- **Donation:** Your grandmother donates the product of the absolute value of your rational number and \$1000. Graph how much you now have remaining on the number line.
- **Answer the following question:** Do you have enough money to go to Rio? Explain why or why not.

4. **CONFLICTS:** This is your chance to create and solve your own two problems using your rational number: (6 points)

- Write a mathematical expression using your *opposite* and find the answer.
- Write a story problem using your rational number and find the answer.

|   |  |   |
|---|--|---|
| <b>Your rational number:</b><br>$\frac{3}{8}$   | <b>Your rational number:</b><br>$\frac{5}{6}$  | <b>Your rational number:</b><br>$\frac{1}{3}$   |
| <b>Your rational number:</b><br>$-\frac{12}{5}$ | <b>Your rational number:</b><br>$\frac{7}{6}$  | <b>Your rational number:</b><br>$-\frac{44}{5}$ |
| <b>Your rational number:</b><br>$\frac{3}{5}$   | <b>Your rational number:</b><br>$-\frac{7}{8}$ | <b>Your rational number:</b><br>$-\frac{23}{7}$ |
| <b>Your rational number:</b><br>$\frac{1}{4}$   | <b>Your rational number:</b><br>$\frac{5}{2}$  | <b>Your rational number:</b><br>$\frac{29}{10}$ |
| <b>Your rational number:</b><br>$-\frac{3}{4}$  | <b>Your rational number:</b><br>$-\frac{5}{4}$ | <b>Your rational number:</b><br>$\frac{16}{5}$  |
| <b>Your rational number:</b><br>$-\frac{15}{7}$ | <b>Your rational number:</b><br>$\frac{3}{7}$  | <b>Your rational number:</b><br>$-\frac{1}{5}$  |
| <b>Your rational number:</b><br>$\frac{11}{2}$  | <b>Your rational number:</b><br>$-\frac{1}{2}$ | <b>Your rational number:</b><br>$\frac{1}{10}$  |

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**Chapter 3 & 4: Integers & Rational Numbers**



**RUBRIC:**

| Category   | Possible Points | Points Earned |
|--|-----------------|---------------|
| 1. <b>Details:</b> Includes all details with proper mathematical notations and work shown. | 10              |               |
| 2. <b>Patterns:</b> Includes both multiplication and division sections.                    | 8               |               |
| 3. <b>Olympics:</b> Includes all items with correct placement on the number line.          | 14              |               |
| 4. <b>Conflict:</b> Includes both problems with solutions.                                 | 6               |               |
| 6. <b>Visual Appeal: Poster</b> is neat and organized.                                     | 2               |               |
| <b>Total</b>   | <b>40</b>       |               |

**Additional rational numbers if needed**

|   |  |  |
|---|--|--|
| <b>Your rational number:</b><br>$-\frac{5}{8}$  | <b>Your rational number:</b><br>$-\frac{1}{6}$ | <b>Your rational number:</b><br>$\frac{1}{3}$    |
| <b>Your rational number:</b><br>$-\frac{9}{5}$  | <b>Your rational number:</b><br>$\frac{11}{6}$ | <b>Your rational number:</b><br>$-\frac{44}{7}$  |
| <b>Your rational number:</b><br>$-\frac{3}{10}$ | <b>Your rational number:</b><br>$-\frac{9}{8}$ | <b>Your rational number:</b><br>$-\frac{25}{6}$  |
| <b>Your rational number:</b><br>$\frac{1}{6}$   | <b>Your rational number:</b><br>$-\frac{7}{2}$ | <b>Your rational number:</b><br>$-\frac{32}{10}$ |
| <b>Your rational number:</b><br>$-\frac{8}{9}$  | <b>Your rational number:</b><br>$-\frac{7}{4}$ | <b>Your rational number:</b><br>$-\frac{28}{5}$  |
|   |  |  |
|   |  |  |