

Due: In class today and Wednesday

- (1) In the set of Natural Numbers, multiplication can be thought of as repeated addition and exponentiation as repeated multiplication. Why is this not the case in the set of real numbers? Explain with some examples.

- (2) Let O be the set of Odd Positive Numbers.
 - a. Is O closed under addition? Explain why or why not.

 - b. Is O closed under subtraction? Explain why or why not.

- (3) Consider the average operation, \mathcal{A} , which returns the average of two numbers. For example, $\mathcal{A}(4, 6) = 5$, $\mathcal{A}(12, 14) = 13$, and $\mathcal{A}(1, 9) = 5$.
 - a. Is \mathbb{Z} closed under the \mathcal{A} operation? Explain why or why not.

 - b. Is the set of even integers closed under the \mathcal{A} operation? Explain why or why not.

- (4) Create a new mnemonic device for the proper order of operations.

- (5) Compute $\frac{2\frac{3}{4}}{\frac{4}{3} \frac{3}{8}}$ and draw a picture on the back of this page to illustrate the solution.