

Practice problems for Math 247 test 1:

1. Explain why subtracting a negative is equivalent to as adding a positive:

a. Using a combined chip/number line model such as a weight/float model show and explain how to solve $3 - (-2)$

b. Using the same model you used in (a), show and explain how to solve $3 + 2$

c. Use the processes in a and b to explain why it make sense that subtracting a negative is equivalent to adding a positive.

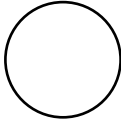
2. Explain why multiplying two negatives results in a positive product:

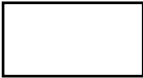
a. Using a combined chip/number line model such as a weight/float model show and explain how to solve $(-4) \times (-5)$

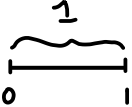
b. Using the same model you used in (a), show and explain how to solve 4×5


c. Use the processes in a and b to explain why it make sense that multiplying two negatives is equivalent to multiplying two positives.

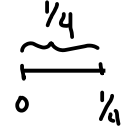
3. If  =1, draw 4/5

If  =1, draw 5/4

if  =1, draw 4/5

If  =1, draw 5/4

4. If  =1/3, draw 1

If  =1/4, draw 1

5. Explain how to compare these pairs of fractions using one of the comparison strategies that don't involve finding a common denominator:

a. $\frac{5}{7}$ and $\frac{6}{8}$

b. $\frac{3}{20}$ and $\frac{4}{20}$

c. $\frac{2}{9}$ and $\frac{2}{7}$

d. $\frac{4}{7}$ and $\frac{2}{5}$

6. For each of the word problems below, draw out solutions in 3 ways, and write the fractional answers that match your pictures (3 sets of fractions, 3 sets of pictures for each)

Strategies to show:

- Share large pieces first
- Share one item at a time
- Factors or breaking into groups

a. Six children are sharing 9 brownies. How much does each child get?

b. Six brownies are shared by 9 children. How much does each child get?

7. Show how to visually simplify each fraction by grouping. Label your pictures or write an explanation to show how the original fraction is related to the simplified fraction. Write the equation that corresponds to your pictures and labels.

a. $\frac{9}{15}$

b. $\frac{8}{12}$

8. For the fraction sums and differences below, show how to use squares to find the equivalent fractions that have the same size pieces (common denominator). Your equivalent fraction should have pieces that are the same shape and size for both fractions. Label your pictures or write an explanation to show how the equivalent fraction names correspond using multiplication. Write an equation or equations that correspond to your pictures and labels.

a. $\frac{3}{4} - \frac{2}{3}$

b. $\frac{2}{3} + \frac{4}{5}$