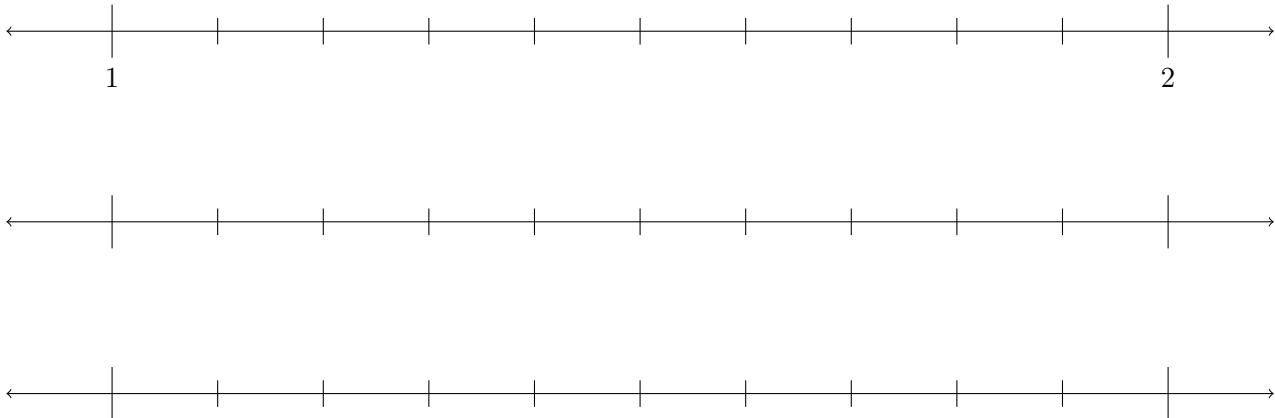


## MATH 1135 REVIEW I

- There are two important and distinct ways to think about the counting numbers.
  - Write those two ways with an explanation of what they mean.
  - Explain the essential properties of accurate counting. How does accurate counting connect the two ways of thinking about the counting numbers?
- Draw two pictures of loose and bundled toothpicks or beads which could represent the number eighteen: First in a way that fits with the structure of the decimal place value system, and then in a way that fits with the structure of the base-four place value system. Explain how the concept of place value is illustrated in your drawings.
- Draw a picture of loose and bundled beads which could represent the number .035 in a way that fits with the structure of the decimal place value system. Be sure to include a key showing what number a single bead represents.
- Use the number lines below to “zoom in” on the number 1.048: Label the large tick marks on each line with the same place value as the small ones on the line above it, and show approximately where 1.048 lies on each line. You do not have to label every single tick mark, but you should label enough so that your thinking is clear.  
Use your drawings to explain how to round 1.048 to the nearest hundredth and to the nearest tenth.



- Round 4.2485 to the nearest tenth and explain your answer in terms of what it means to round. Use a number line to support your explanation.
- The meaning of fractions.
  - List the three key parts of the meaning of fractions, with a brief explanation of each.
  - Use the meaning of fractions to explain how to plot  $\frac{8}{3}$  on a number line.
- For each part, use the meaning of fractions to explain why the two fractions are equivalent:
  -

$$\frac{3}{4} = \frac{3 \cdot 3}{4 \cdot 3}$$

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(b)

$$\frac{6}{8} = \frac{6 \div 2}{8 \div 2}$$

8. For each part, use equivalent fractions and the basic meaning of fractions to explain which of the following two fractions is larger.

(a)

$$\frac{15}{19} \text{ v.s. } \frac{5}{7}$$

(b)

$$\frac{7}{16} \text{ v.s. } \frac{1}{2}$$

(c)

$$\frac{25}{113} \text{ or } \frac{25}{182}$$

9. Linus drinks  $\frac{2}{5}$  cup of milk, and then another  $\frac{1}{4}$  cup. How much milk did he drink all together? Explain your answer in terms of the meaning of fractions.

10. A cat eats  $\frac{4}{3}$  cups of liver a day. If the cat eats  $\frac{2}{3}$  cups of liver in the morning, what fraction of its daily liver has it eaten? Explain your answer in terms of the meaning of fractions.

11. Imagine that the box below is  $\frac{3}{5}$  of some larger box. Mark this box to show  $\frac{4}{15}$  of the larger one, and explain your markings using the meaning of fractions.



12. A serving of rice is  $\frac{2}{3}$  cup. Make a math drawing which shows how many cups are in  $\frac{5}{2}$  servings, and explain how to see the whole, the numerator, and the denominator of your answer.

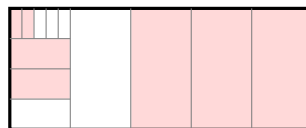
13. On the number line below, plot 0, 0.3, and  $\frac{3}{5}$  in such a way that each number falls on a tick mark.



14. Use a percent table or any method you like to calculate 22% of 6,200. Explain your answer using the meaning of percents and the meaning of fractions.

15. Some people say that 33% is  $\frac{1}{3}$ , but that is not quite accurate. Use the meaning of percents and the meaning of fractions to explain whether 33% is slightly larger or slightly smaller than  $\frac{1}{3}$ .

16. Determine what percentage of the area in the box below is shaded, and explain your answer in terms of the meaning of percents.



17. The box below is 40% of a larger box. Draw, as accurately as you can, what the larger box could look like. Explain your drawing using the meaning of percents and their relationship to fractions.

