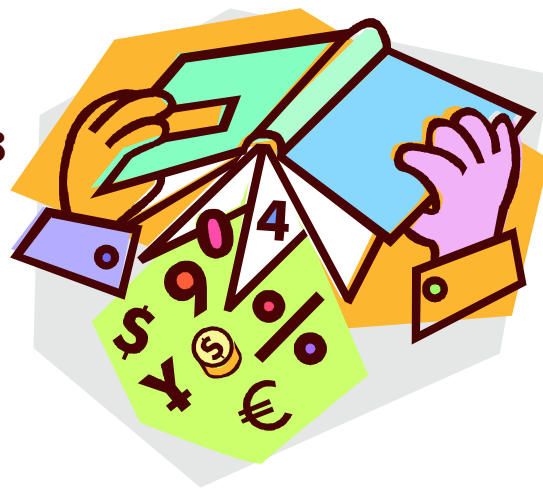


Algebra/Geometry Institute Summer 2008

Do You Have Number Sense?
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Durant, MS



Grade Level: 7

1. Objective(s):

Mississippi State Mathematics Framework Competencies

1a. Classify and compare rational numbers.

2. Instructional Activities

- The teacher will set up the overhead projector.
- The teacher will lay out the sorting circles, note cards, Post-it notes (20 per group), pre-printed Venn diagram (see attachment #1), and a marker on the materials table.
- The teacher will group students according to ability (above level, medium level, and low level will be grouped together) between 3 to 5 students in each group.
- The teacher will instruct each group to select a captain- the captain will ask any questions the group may have about the activity, recorder- the recorder will record all information for the group, and a materials handler- materials handler will collect all materials for the group.
- The teacher will begin the lesson with an introductory activity:
 - i. The teacher will review rational and irrational numbers by asking the students to define each and give an example.
 - ii. The teacher will review comparing rational numbers by writing 2 and -3 on the overhead transparency and asking the students to state which is the largest.
 - iii. The teacher will write the fraction $\frac{-10}{2}$ on the overhead and ask the students what type of number it is and inform them to raise their hand when they know the answer to the question.
 - iv. The teacher will ask a student to give the answer.
 - v. The students will answer the questions.
 - vi. The teacher will use the overhead projector and a Venn diagram transparency labeled with "A. numbers that are integers," "B. Numbers > 1 ," and "C. Numbers < -2 " to show an example of how they should set up the sorting circles. (See attachment #2.)
 - vii. The teacher will ask the students to tell where in the Venn diagram the fraction should go.
 - viii. The teacher will place the answer on the overhead. (See attachment #3.)
- The teacher will ask the materials handler of each group to come and get 3 large sorting circles (different colors), 3 note cards, a marker, and twenty (20) Post-it notes.

- The materials handler will come and get the necessary materials for the group.
- The teacher will tell the students that they will be comparing numbers by deciding if they are negative integers, greater than 1, less than -2, or a combination of those categories.
- The teacher will tell the students to lay out their sorting circles to form a 3-circle diagram and label them accordingly (See attachment #2, example overhead 3-circle labeled Venn diagram).
- The students will lay out the sorting circles and label them according to the example on the overhead.
- The teacher will tell the recorders to take the 3 note cards and write “A. Numbers that are negative integers,” “B. Numbers > 1 ,” and “C. Numbers < -2 .” Then place the labels in each circle of the Venn diagram.
- The teacher will walk around to make sure each group is correctly labeling the Venn diagram.
- The students will use the note card to label the sorting circles.
- The teacher will write twenty numbers on a transparency (see attachment #4) and ask the students of each group to write them on the Post-it notes.
- Each student in the group will write the numbers on the Post-it notes until all twenty are written.
- The teacher will write the directions on the board and read them aloud.
 - i. Directions: Each group must sort the numbers and place them in the Venn diagram in the correct circle. Once the students have placed all the numbers in the circle the recorder will transfer the answers to the pre-printed Venn diagram.
- The teacher will allow each group to have an open discussion about sorting the numbers.
- The students will cooperatively work to sort the numbers and place them in the correct circle. Those students not participating in the activity will be removed from the group and given an individual worksheet.
- The teacher will observe each group as he/she walks around the classroom monitoring their work.
- The teacher will pass out the pre-printed Venn diagram once he/she has observed that all groups are finished sorting the numbers.
- The recorders will transfer the numbers to the pre-printed Venn diagram to be graded.
- The teacher will collect the Venn diagrams to be graded when all the groups are finished.
- The teacher will ask the students to share what they learned from the activity.

3. Materials and Resources

- Pugalee, David K., and Frykholm, Jeffery, et.al. *Navigating through Geometry in Grades 6-8*. Reston, VA: The National Council of Teachers of Mathematics, Inc., 2002, pages 23-25.
- Reyes, B.J., and Barger, R., et.al. *Developing Number Sense in the Middle Grades*. Reston, VA: National Council of Teachers of Mathematics, 1991.

- Note cards (3 per group)
- Post-it Notes (20 per group)
- Large sorting circles (3 per group)
- Markers
- Pre-printed Venn diagram
- Transparencies (Attachments 2 & 4)

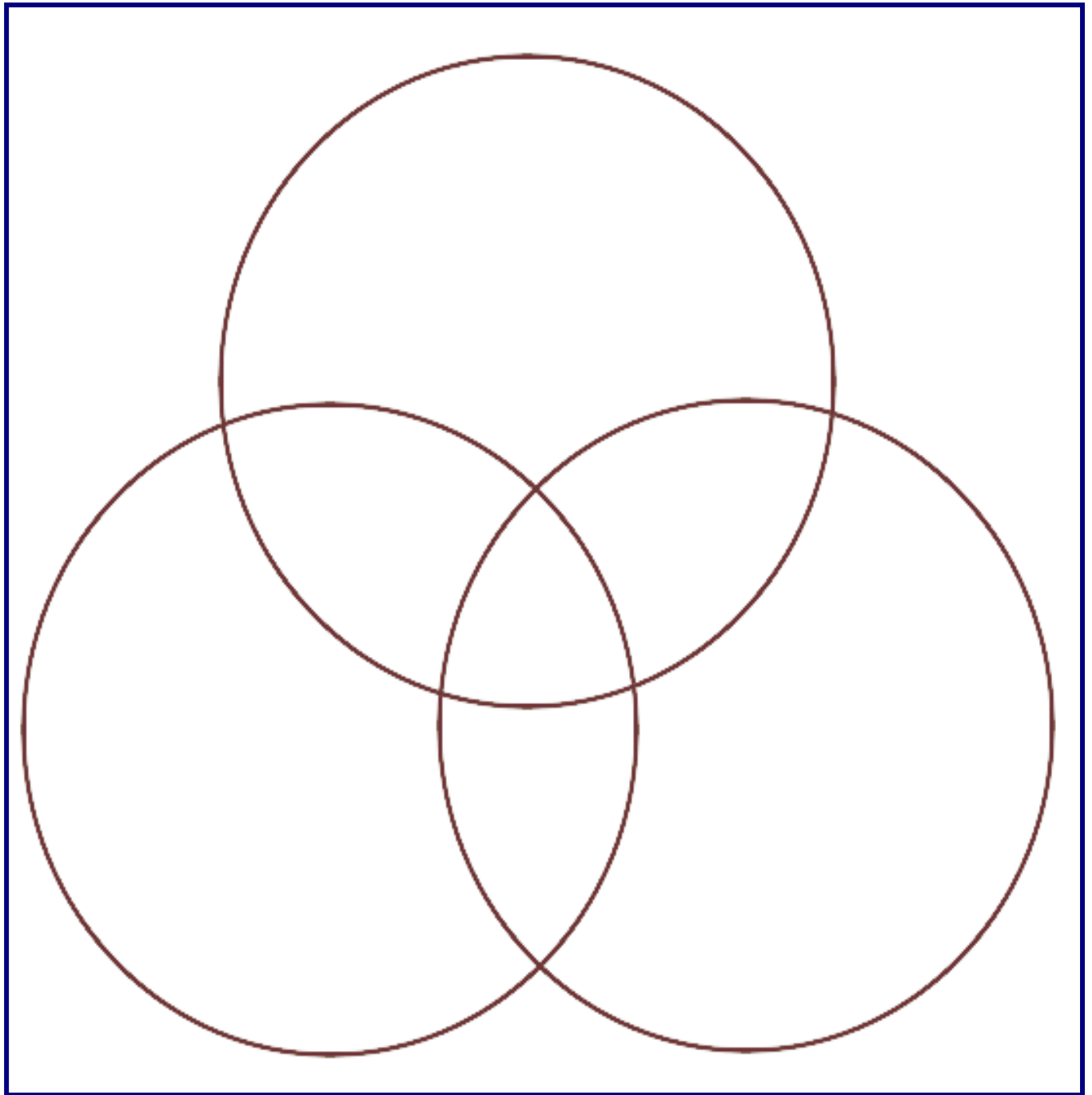
4. Assessment

- The teacher will evaluate the students by grading the pre-printed Venn diagram handout.
- The teacher will also evaluate students on participation. If they participated in the group they will receive a 100%. If they did not participate they will be removed from the group and be graded on an individual assignment that is worth only 80% and not 100% like the group activity.
- The teacher will ask the students to name other categories they can use to identify numbers. Examples could be multiples of 2, multiples of 3, and multiples of 5 as part of a whole-class discussion.

5. Enrichment (Optional)

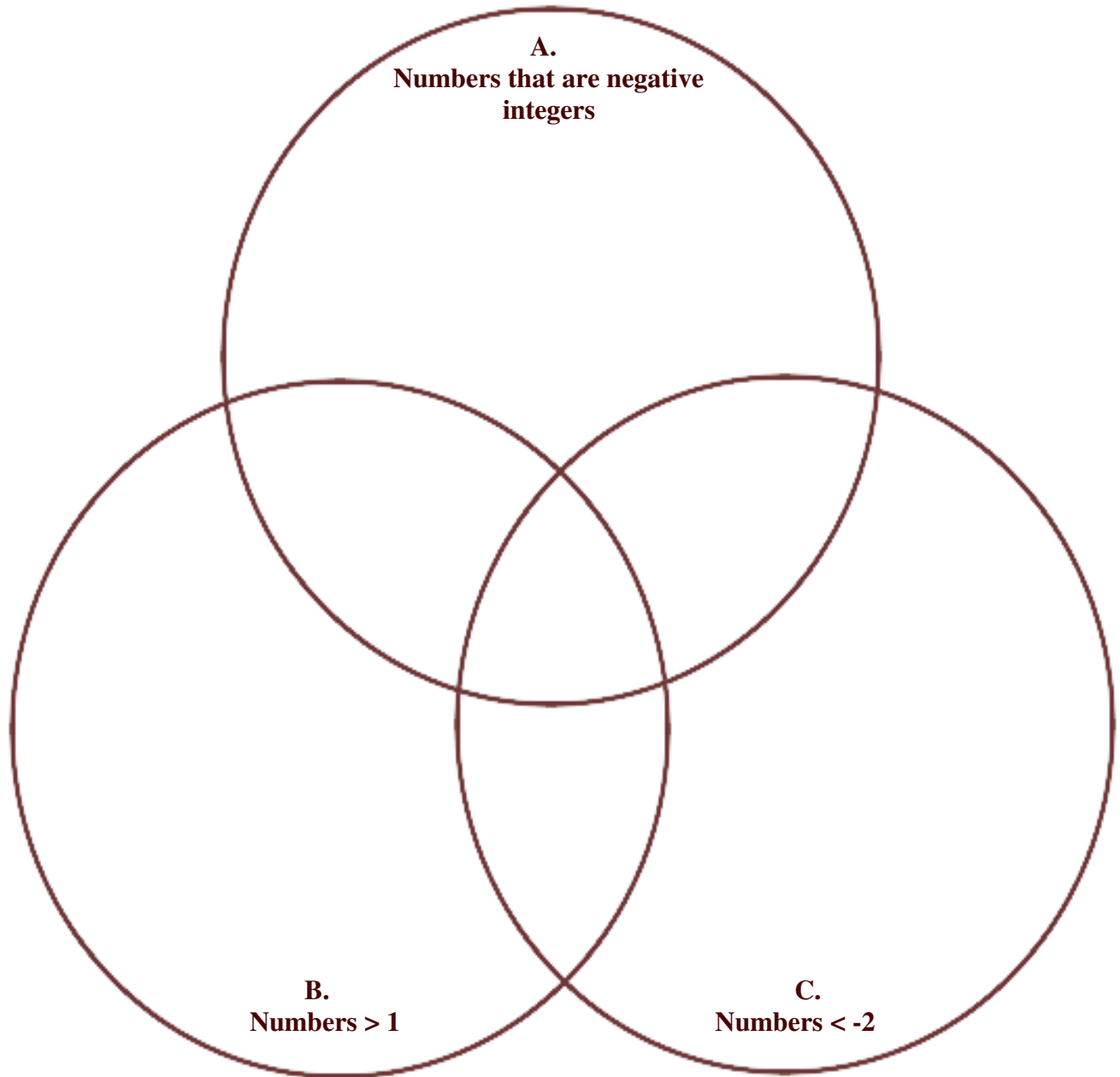
- Students may also compare different equations and expressions.

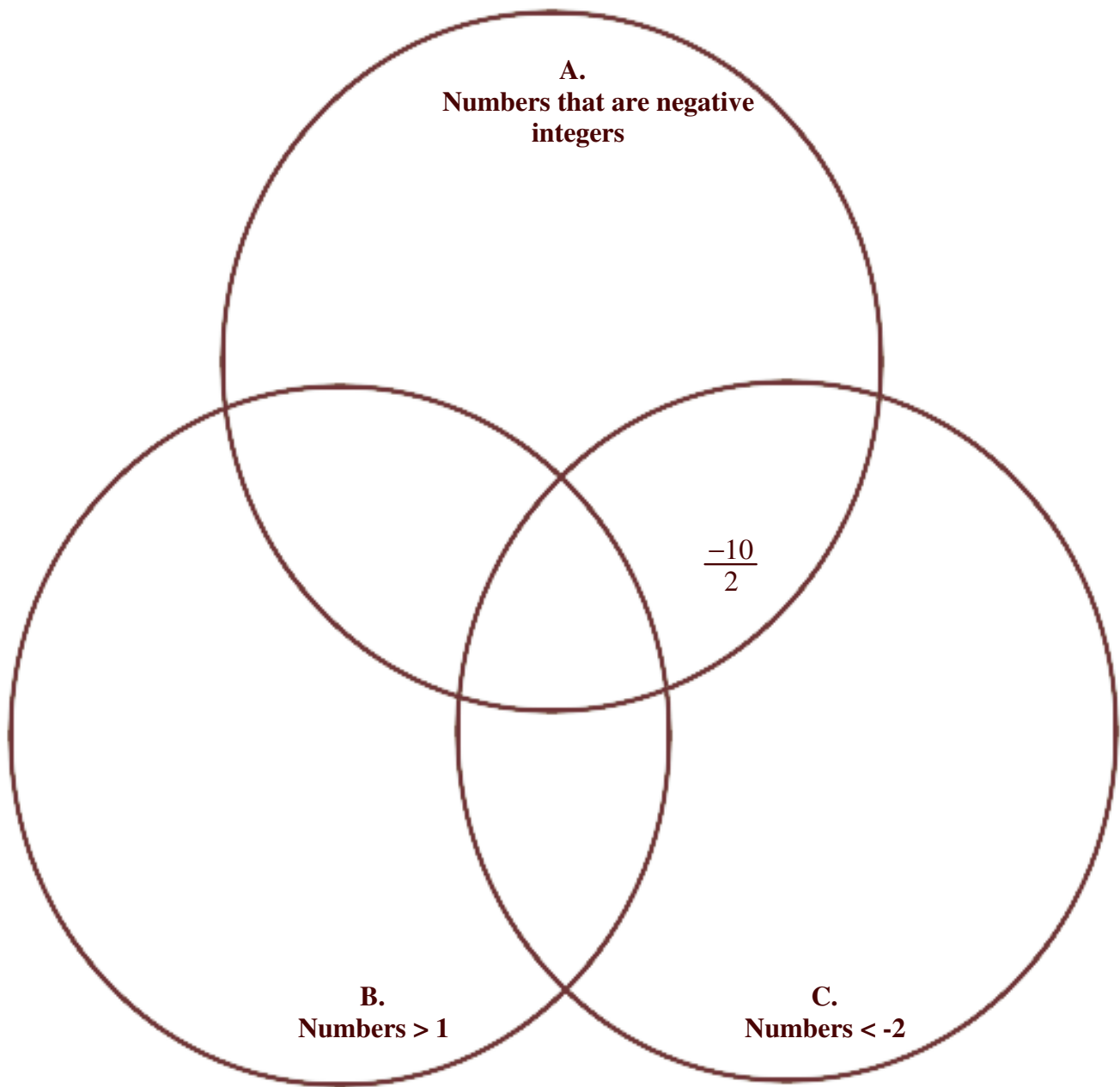
Attachment #1
Group Members Name _____

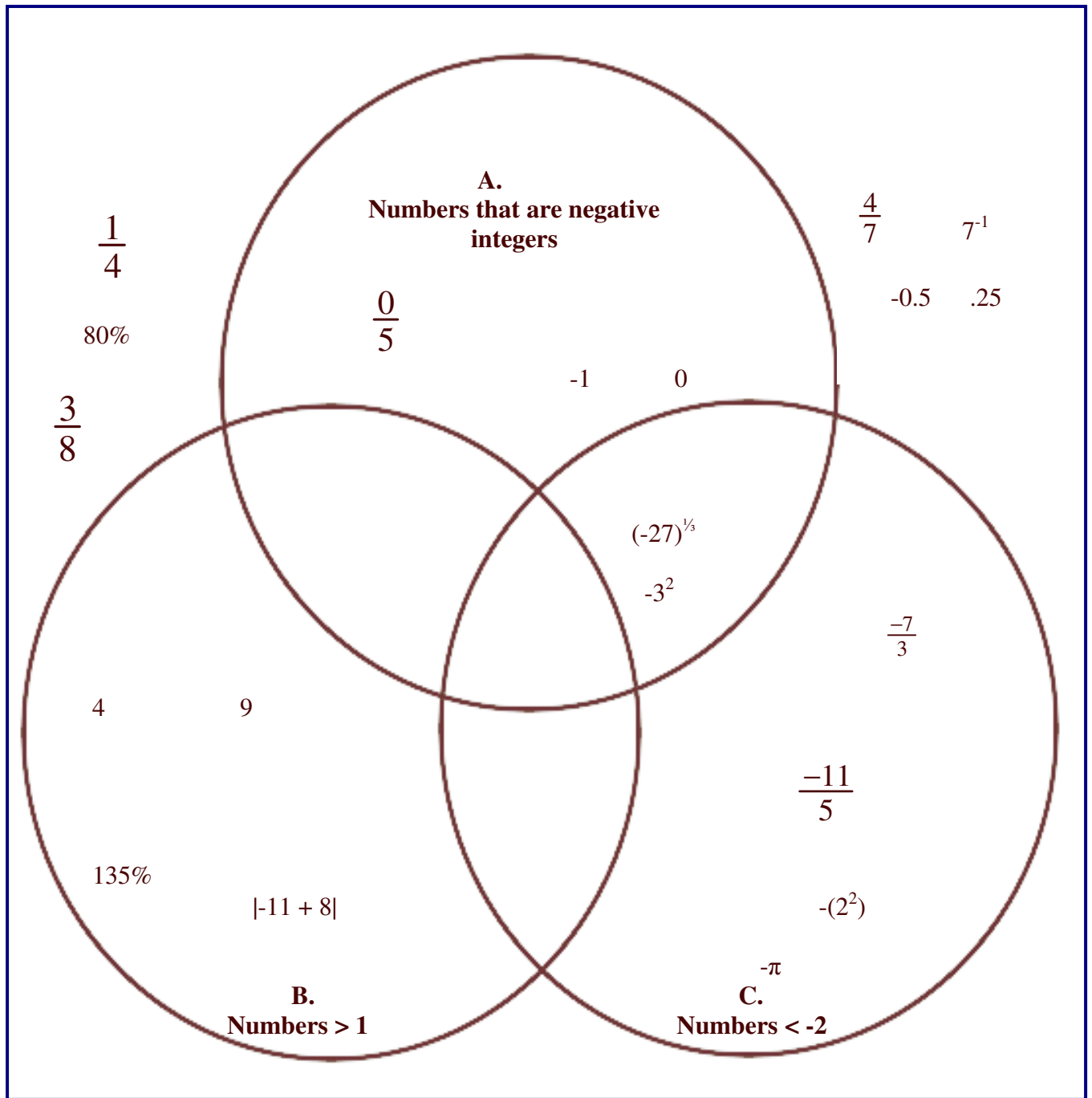


Teacher's Copy (Attachment #2)

Example for students (overhead example)







Numbers to be placed on overhead – Attachment #4 (Transparency)

$\frac{1}{4}$, 80%, $\frac{3}{8}$, $-\pi$, 7^{-1} , $\frac{4}{7}$, $\frac{0}{5}$, .25, $[-11 + 8]$, 4, -1, $-\frac{10}{2}$, $-(2^2)$,

135%, 0, -3^2 , $(-27)^{\frac{1}{3}}$, 9, $-\frac{11}{5}$, -0.5