

3:30 Class: Tuesday, May 8, 1-3 pm *** 2:00 Class: Thursday, May 10, 10:30-12:30**

Study the topics below, in conjunction with all materials from the course. Studying together is also a plus.

Integers: (Remember the symbol **Z** and the listing notation for the SET of integers.)

1. Know how to place integers (and fractions, decimals) on the number line and that LEFT is always LESS.
2. Explain the confusion of statements like “ -5 is a greater negative than -2 .” Rephrase correctly.
3. Answer questions about integer arithmetic rules applied to variables on a number line; explain carefully.
4. Understand absolute value as both distance from zero physically, and as the “positive version” of a number. Treat the bars like parentheses in the Order of Operations (see text HW problems).
5. Solve problems like those assigned in 5-1 and 5-2 of the text, including Fact Families.
6. Work with models: Clown, temperature or mail stories, Fact Patterns.
 - (a) Models CANNOT rewrite the original computations; for instance $2 - (-5)$ can't be traded for $2 + 5$.
 - (b) Explain how to use plus/minus chips to act out a given computation; drawings optional.
 - (c) Recognize/create chip multiplication or divisions that are impossible, explaining what goes wrong.
 - (d) Create Fact Patterns (\neq Fact *Families*) leading to a given computation, applying the guidelines.
 - (e) Convert between Clown-on-a-Tightrope action stories and precise integer number sentences.
 - (f) Convert between temperature or mail verbal stories and precise integer number sentences.

Fractions: (Understand, SPELL, use: numerator, denominator, unit fraction, proper, improper.)

1. Explain CAREFULLY what numerator, denominator MEAN. (Saying “in $2/5$, 5 is the whole” is wrong!)
2. Use the part of a whole meaning to explain which position in a fraction can/cannot be zero.
3. Solve diagram, part-of-a-group problems as on Activity #1, text/HW, QHW #4. (NO tiles needed!)
4. State the Fundamental Law of Fractions (FLF) without variables/formulas; demonstrate it where needed.
5. Show $+$, \times , \div symbols SEPARATELY on top and bottom when using the FLF, the mediant.
6. Find fractions equivalent to a given one, between two given ones. Order a set of several fractions by size.
7. Decide whether fractions are equal/which is bigger: draw, estimate, CD, cross-multiply, meanings of N/D .
8. Explain carefully if comparing via meaning of numer (N)/denom (D). This method can fail: give examples.
9. Know, clearly explain denseness for fractions/decimals. (“It’s a number between others” is poor.)
10. Create, choose good estimates for given fractions; explain whether estimate is high or low.
11. Add, subtract, multiply, divide fractions entirely by hand, showing steps. Find multiplicative inverse/reciprocal.
12. Reduce answers to lowest terms/simplest form when asked, showing FLF steps.
13. Solve fraction problem-solving tasks, such as textbook-like word problems or 6-2B #4.
14. Recognize, explain correct/incorrect interpretations, as in 6-2 and 6-3 Connections problems.
15. Draw, label, explain diagrams to add, multiply, divide fractions; explain how aspects of answer are shown.
16. Remember that the denominator is the number of (same-size) pieces in ONE whole.
17. Show work converting between mixed numbers and improper fractions, with and without shortcut.
18. Add, subtract two or more mixed numbers IN THAT NOTATION, showing correct regrouping.
19. Answer multiply/divide estimation or number sense questions like 6-3A and 6-3B #9, 10.

Ratio and Proportion: (Don’t trick yourself into measurement conversion, as on Exam #2; we don’t cover that!)

1. Convert between ratios given verbally or with notation: “for/out of every,” fractions, “times” etc.
2. Interpret/write ratios in lowest terms. Recognize part-to-part vs. part-to-whole.
3. Solve word problems using representative sets, unit-rate/scaling, proportional equations. Explain.
 - (a) For representative sets, drawing and explaining a picture is best. Use one symbol per ONE item!
 - (b) For scaling or unit-rate, be as thorough as possible. Don’t skip info.
 - (c) For proportional equations, charts are allowed but not required. Include units in your answer.

Decimal Numbers and Percents: Bring an approved calculator! But be careful about trusting it.

1. Round decimal numbers and percents; find one or more numbers that round TO a desired result.
2. Find some or all decimals satisfying given clues, including rounding or exponent clues.
3. Convert: standard notation, word form, expanded form w/wo exponents, percents, fractions, decimals.
4. Add, subtract, multiply, and divide decimal numbers by hand.
5. Order a given collection of decimals, including non-terminating (bar or ellipsis).
6. Demonstrate denseness, including rational or irrational numbers between others.
7. List the three appearances for decimal numbers. Give examples of each. Know which are/aren't rational.
8. Use bar and ellipsis notation correctly, recognize when each is needed. Trade between them appropriately.
9. Solve percent word problems that don't have any "real life" context.

Statistics:

1. Interpret, create, label all the types of graphs listed on the Summary except scatter plots, box plots.
2. Tell what each type of graph is best for; make the best choice for a given setting.
3. Find mean, median, mode, range of a list of scores; create data with specified mean, median, mode, range.
4. Explain what goes wrong when it is NOT possible to make up such sets.
5. Given a mean, find the new mean when a few new scores are added, deleted.
6. Find a mean when given the means for some groups of data, as in the cheerleader problem.

Probability:

1. Name the four types of probability.
2. Answer questions about intuitive probability: choosing among verbal, not numeric, answers.
3. Explain how geometric probability is found; do so for a given rectangular drawing, as in class.
4. Create spinner diagrams so that certain probabilities apply. Beware "probability of ... is 1" set-ups!
5. Recognize whether a given sample space is uniform or not; create ones that are.
6. Determine probabilities of events, including using "and," "or," "at least," "at most," etc.
7. Be prepared for multi-stage experiments: two or more dice, coins, spinners, etc.
8. Explain how experimental probability helps to see whether a sample space is uniform or not.
9. Find experimental probabilities from a list of actual observances.
10. State the Law of Large Numbers. Use it to solve problems like 9-1A and 9-1B #21-22.

End-of-Course Information:

- The Final Exam is worth 150 points out of 500 total points for the course. See the Day One syllabus.
- Material will be split roughly equally among the 3 earlier exams' content, with about 15% for Probability as well.
- I don't expect to have ANY finals graded earlier than Saturday afternoon, May 12... at best!
- Please don't email/phone for your grade - that only slows me (and your other professors) down.
- I'll TRY to post scores on D2L when available, so you can see them before the Tuesday night MySRU deadline.
- D2L grades are NEVER official per SRU rules - only the grade reported by your professor on MySRU is official.
- If you think there's an *error* calculating your score, I will definitely look into that ASAP.
- Please don't ask afterwards for extra credit or "is there any way I can make up/re-do...?" - I don't do that.

Review Session Monday, May 7, 11:30-12:30 in VSC 201 - around the corner from our classroom.