Prepare for the exam by carefully studying this list with reference to the reading, in-class activities, homework, quizzes, and especially your notes. Strive to master concepts and computational techniques in general; memorizing only the specific examples we've practiced is unlikely to be reliable or successful on the exam.

## Measurement:

1. State in order the three steps in the general process of measurement.
2. Spell names and abbreviations, in order of size, for metric units of length, volume, or weight.
3. Memorize the exact conversions identified in your notes for the customary system.
4. Memorize and use reference units (your own or from Summary \#1) to identify the best measurement or type of unit from a list, to choose the larger of two measurements, or to position a decimal point in a measurement.
5. Memorize the five comparisons between customary and metric from Summary $\# 1$. Use them in selecting the largest or smallest in a set of measurements.
6. Convert between measurements using direct reasoning, proportions, the "staircase," or dimension analysis. Round correctly. I may require a particular method for some problems.
7. Be prepared for mixed units, as in " 5 feet, 7 inches," for product units such as "foot-pounds," and for prefixes in non-metric units, as in "kilowatts."
8. Beware the need to repeat fractions or to "flip" in dimension analysis.
9. Be able to use unmemorized conversions (such as 1 inch $=2.54 \mathrm{~cm}$ ) when they are given to you.
10. Draw, label, and explain a picture for deriving correct comparisons between square units (as in square feet and square yards, or square decimeters and square meters).

## Area and Perimeter:

1. Draw polyominos that have specified perimeters (largest, smallest, in between). Explain.
2. Know and correctly spell the terms circumference, hypotenuse, Pythagorean Theorem, leg.
3. Memorize and use required formulas for circumference, Pythagorean Theorem, and area.
4. Use additive or subtractive approaches to find perimeters, areas.
5. Remember to use the Pythagorean Theorem to compute slants on grids, including 45-degree slants.
6. Given the in-class diagram, explain in algebra and sentences why the Pythag. Theorem is true.
7. Prepare for area, perimeter problems requiring multiple steps or your own auxiliary lines.
8. Use correct units for your answers when units appear in the problem.
9. Find distances or missing lengths as in HW, including "N-S-E-W" problems.
10. Use the Triangle Inequality or Pythagorean Theorem to explain whether a given set of measurements could be the sides of a triangle in general or a right triangle in particular.
11. Given verbal information about a circle, find its circumference, area, diameter, or radius.
12. Be prepared for diagrams or verbal descriptions involving fractional parts of circles.
13. Solve "backwards" area problems (see HW), including ones where the area is not initially stated.
14. Answer questions like "If the radius doubles, what is the amount, nature of the change in area?"
15. Dissect and explain to compare area formulas for rectangles, parallelograms, triangles, or circles.
16. Compare areas of triangles, quadrilaterals by visualizing correct bases and heights on a grid.
17. Draw and label shapes with given relationships between area and perimeter, as in HW.

## You must bring an approved calculator for the exam.

No cell phones, graphing, or text memory - check in advance if you're unsure.
If you forget, I will loan you one, but for a deduction in your score!

