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 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!