

Study with reference to the text, activities, homework, quizzes, Exams #1-3, and especially your notes.

Measurement:

1. Know names and abbreviations, in order of size, for metric units of length, volume, or weight.
2. Memorize the exact conversions identified in your notes for the customary system.
3. Memorize reference units and the comparisons between customary and metric from Summary #1.
4. Use them 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. Convert between measurements using various methods. Round correctly.
6. Beware mixed units, product units, metric prefixes, or the need to repeat or “flip” fractions.
7. Be able to use unmemorized conversions (such as 1 inch = 2.54 cm) when they are given to you.
8. Draw, label, and explain a picture for deriving correct comparisons between square units.

Area and Perimeter:

1. Draw polyominoes that have specified perimeters (largest, smallest, in between). Explain.
2. Know, 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. Prepare for area, perimeter problems requiring multiple steps or your own auxiliary lines.
7. Find distances or missing lengths as in HW, including “N-S-E-W” problems.
8. Given verbal information about a circle, find its circumference, area, diameter, or radius.
9. Be prepared for diagrams or verbal descriptions involving fractional parts of circles.
10. Solve “backwards” area problems (see HW), including ones where the area is not initially stated.
11. Answer questions like “If the radius doubles, what is the amount, nature of the change in area?”
12. Compare areas of triangles, quadrilaterals by visualizing correct bases and heights on a grid.
13. Draw and label shapes with given relationships between area and perimeter, as in HW.

Basic Definitions and Properties:

1. Memorize, correctly spell all terms on Summary #2 and in notes for fill-in problems.
2. Draw examples of each, marking clearly. When relevant, your markings should clearly show:
 - Congruent sides marked the same; non-congruent sides marked differently.
 - Congruent angles marked the same; non-congruent angles marked differently.
 - Parallel sides marked with identical arrows. (Arrows DON’T describe length.)
 - Right angles marked \perp ; acute angles labeled $< 90^\circ$; obtuse angles marked $> 90^\circ$.
 - For polygons, number each side to show the count clearly.
3. Identify examples, non-examples of Summary #2/notes terms in a given diagram.
4. Name points, lines, segments, rays, angles w/correct notation.
5. Use correct notation to solve union, intersection problems.
6. Create zero, acute, right, obtuse, straight, reflex angles on square grids.
7. Compute angle measurements formed by working clock hands at a given time.
8. Identify transversals, the three types of angles in parallel line diagrams. Spell.
9. Use congruence facts about corresponding, alternate interior/exterior, vertical, supplementary, and triangle angles to find measurements of marked angles in a diagram. Prepare to explain EACH angle at a time, as in notes and quiz, and label new angles as you need them.

Polygons:

1. Identify, draw curves that are simple/not, closed/not, polygonal/not, convex/concave. Spell these.
2. Know, spell names of polygons from 3-12 sides, vertex, side, diagonal for fill-in or explanations.
3. Know, spell equilateral, equiangular, regular; identify, draw polygons with/without these qualities.
4. Find the number of diagonals from one vertex or in total for a given polygon. Explain when asked.
5. Determine whether a given number of diagonals is possible (guess/check with square root help).
6. Memorize, use formula for the interior/vertex angle total in an n -gon.
7. Compute interior angle total when told the number of sides or name of polygon.
8. Find the size of EACH interior angle when told about a regular or equiangular polygon.
9. Find missing angle measurements in diagrams of polygons, as in HW and quiz. Explain reasoning.
10. Find the number of sides when told about the angles.
11. Use formula or guess and check to tell whether given interior angle measures are possible.

Triangles and Quadrilaterals:

1. Correctly spell names of all triangles, quadrilaterals for fill-ins, explanations.
2. Draw or recognize examples, non-examples of each, marking key features as described above.
3. Tell which quadrilaterals are special kinds of others; use the family tree.

Coordinate Geometry:

1. Use right triangles to find points with given distances, as " $AB = 3BC$ " or " M is \overline{XY} 's midpoint."
2. Compute slopes, including for parallel, perpendicular lines, horizontal, or vertical lines.
3. Find points with given distance/parallel/perpendicular info, as " $\overrightarrow{PQ} \perp \overrightarrow{QR}$ and $PR = 2PQ$."
4. Find one or more missing points to create various kinds of triangles and quadrilaterals.

Rigid Motions:

1. DRAW the image of a translation described verbally, by an arrow, or on a grid.
2. DRAW the image of a reflection, both on and without a grid.
3. DRAW the image of a rotation, both on and without a grid.
4. Given a complete diagram, NAME the image of an object after one OR MORE rigid motions.
5. Patty paper will be provided.

Symmetry:

1. Given a figure, name the types of symmetry it possess or lacks.
2. Draw figures that have/lack certain symmetry, such as "has rotational but not reflectional."
3. Complete partial diagrams so that the result will have specified symmetry (as on the Quiz).
4. Tell how many degrees a figure must rotate to demonstrate symmetry. Give multiple answers.
5. Sketch the lines of symmetry of a figure.
6. For a regular n -gon, tell the number of lines of symmetry and the minimum angle of rotation.

Congruence:

1. Know the three acronyms that guarantee triangle congruence, what words they represent, and both versions of how to state each one.
2. Know that AAA and ASS don't guarantee congruence; draw examples illustrating this failure.
3. Given a diagram, identify a pair of congruent triangles, name and justify the acronym you use.
4. Correctly use notation to report triangle congruence.

Bring an approved calculator for the exam.