



BROWNELL TALBOT

Geometry Prioritized Math Standards

The prioritized standards listed align with both the NCTM (National Council for Teachers of Mathematics) and the Nebraska State Standards. The NCTM also includes a set of Process Standards for grades preschool through 12 that highlight mathematical processes that students draw on to acquire and use their content knowledge (see the link on the next page).

Geometry

Analyze characteristics and properties of two and three dimensional geometric shapes and develop mathematical arguments about geometric relationships

Understand relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects

Create and critique inductive and deductive arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship

Analyze properties and determine attributes of two and three dimensional objects

Explore relationships (including congruence and similarity) among classes of two and three dimensional geometric objects, make and test conjectures about them, and solve problems involving them

Establish validity of geometric conjectures using deduction, prove theorems, and critique arguments made by others

Use trigonometric relationships to determine lengths and angle measures

ACT (Math):
G 701

- Use relationships among angles, arcs, and distances in a circle

G 704

- Analyze and draw conclusions based on a set of conditions

Specify locations and describe spatial relationships using coordinate geometry and other representational systems

Use coordinate geometry to examine special geometric shapes, such as regular polygons or those with pairs of parallel or perpendicular sides

Investigate conjectures and solve problems involving two and three dimensional objects represented with Cartesian coordinates

Use visualization, spatial reasoning, and geometric modeling to solve problems

Draw and construct representations of two and three dimensional geometric objects using a variety of tools

Use geometric models to gain insight into, and answer questions in other areas of mathematics

Use geometric ideas to solve problems in, and gain insights into, other disciplines and other areas of interest such as art and architecture

ACT (Math):
G 702-703

- Compute the area of composite geometric figures when planning and/or visualization is required
- Use scale factors to determine the magnitude of a size change

G 705

- Solve multi-step geometry problems that involve integrating concepts, planning, and/or visualization

Measurement

Apply appropriate techniques, tools, and formulas to determine measurements

Understand and use formulas for the area, surface area, and volume of geometric figures, including cones, spheres, and cylinders