

## Homework Help for Math Out of the Box

### Developing Geometric Logic: Corners and Containers

Information about homework assignments is provided to help parents and other homework helpers with the mathematics ideas that are being developed. The homework help includes definitions of key vocabulary, questions to ask that will help students connect to the classroom investigations, problem solving examples, and other helpful explanations.

#### Homework 4A1 follows Lesson 4

Prisms are three-dimensional shapes with two ends or bases which are congruent, parallel polygons and with other faces that are rectangles or, more generally, parallelograms. Prisms are named by their bases. A cube is a special rectangular prism because all of its faces are congruent (same shape and size).

A pyramid is a three-dimensional shape with one face, the base, which has three or more edges, and with other faces, which are triangles, that share a common vertex. A pyramid is named by the shape of its base.

A cone is defined as a three-dimensional shape with a circular base and a curved surface that tapers to an apex. A cylinder is a three-dimensional shape with two flat circular faces which are congruent and a curved surface which joins the two ends. A sphere is a three-dimensional shape with a curved surface on which each point is equidistant from a single point called the center. It has no edges and no vertices.

#### Homework 4B1 follows Lesson 6

A quadrilateral is a polygon with 4 sides and 4 angles.

Examples of quadrilaterals:

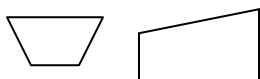


A parallelogram is a quadrilateral with 2 pairs of parallel sides.

Examples of parallelograms:



A trapezoid is a quadrilateral with 1 pair of parallel sides.



Some of the polygons studied in fourth grade are listed below:

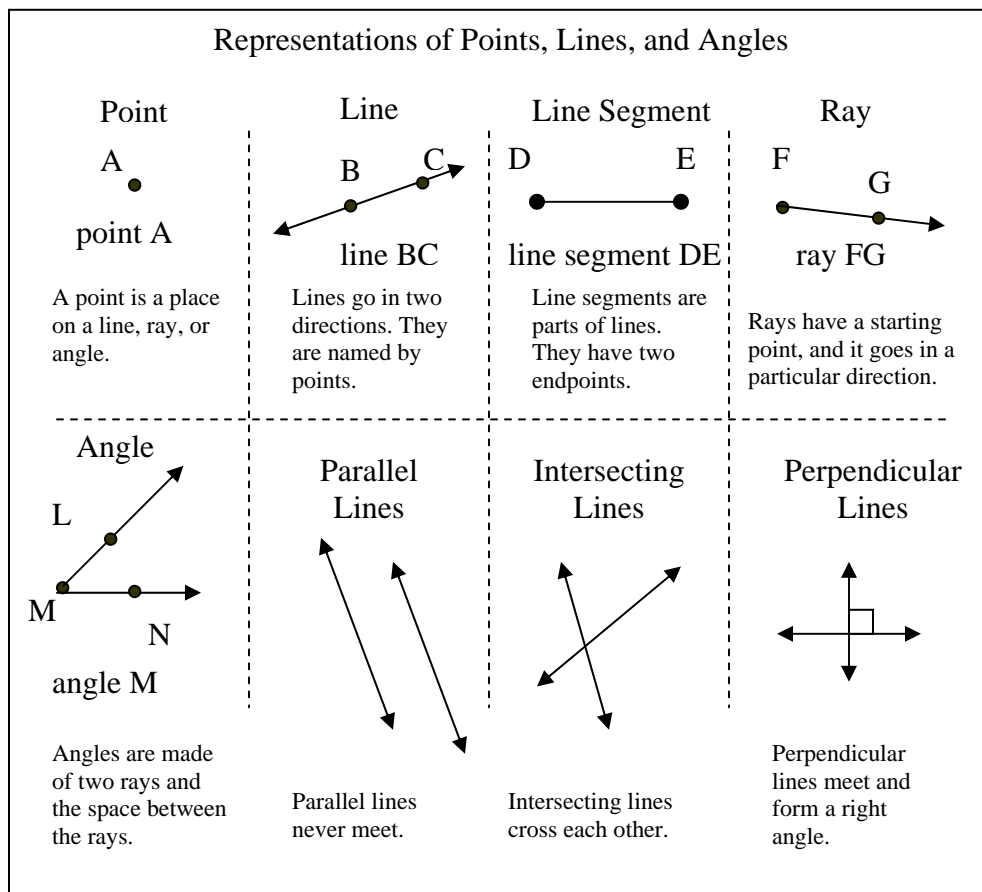
**Heptagon:** A polygon with seven sides and seven angles.



- Hexagon:** A polygon with six sides and six angles.
- Octagon:** A polygon with eight sides and eight angles.
- Pentagon:** A polygon with five sides and five angles.
- Polygon:** A closed, two-dimensional shape which is bounded by line segments.
- Rectangle:** A quadrilateral with four right angles.
- Rhombus:** A parallelogram with four equal sides.
- Square:** A rectangle with four equal sides and four equal angles.
- Trapezoid:** A quadrilateral with exactly one pair of parallel sides.
- Triangle:** A polygon with three sides and three angles.

**Homework 4B2 follows Lessons 9**

Following are terms that are basic to the language of geometry:



**Homework 4C1 follows Lesson 10**

Nets are patterns of two-dimensional representations of three-dimensional shapes. When folded along their lines, nets form a three-dimensional shape.



### **Homework 4D1 follows Lesson 16**

Transformations are patterns of movement. A transformation that flips a figure over a line to create a mirror image of the original figure is known as a flip or a reflection. A transformation that turns a figure about a point is known as a turn or rotation. A transformation that slides each point of a figure the same distance in the same direction is known as a slide or translation.

Transformations can be observed in everyday life in exercise routines, in movement from one point to another, and in placing pieces of a puzzle in place.

### **Homework 4E1 follows Lesson 19**

To locate a point on a grid with positive numbers such as (3, 6), first move right if the number on the x-axis from the origin or zero. For this coordinate move 3 units to the right. Next, move up on the y-axis. For this coordinate, move up 6 units.

