Name: _____ Date: _____

Chapter 3 Problems of the Week

1. A steel plate is shaped like a parallelogram. The height of the plate is 3 cm. If you divide the plate into a triangle at each end and a rectangle in the middle, the perimeter of the plate would be 28 cm.

a) Draw a parallelogram that matches this description.

b) Determine the area of the parallelogram.

2. A wind chime is made of parallelograms and triangles. Each shape has the same area. Draw and label a wind chime made of three different parallelograms and three different triangles, each with an area of 50 cm^2. Show your work.

3. A patchwork quilt pattern for a bed has a number of triangles and parallelograms in its design. Each triangle and parallelogram has a base of 10 cm.

a) If the area of a parallelogram is twice as great as the area of a triangle, what is a possible height for each shape?

b) What must be true about the height of the two shapes compared to each other?

c) What must be true about the total number of triangles compared to parallelograms?

4. Flat surfaces, such as parallelograms and triangles, are used on the wings of planes to reflect radar.

a) Draw a triangular-shaped aircraft wing that is made of parallelograms and triangles in equal numbers. Label any parallel or perpendicular lines that occur on your drawing.

b) Select one parallelogram, and draw an angle bisector for two of its vertices.

5. Determine the number of pairs of parallel faces and parallel edges for each of the following objects.

a) regular tetrahedron

b) cube

c) regular octahedron

6. Determine the number of pairs of parallel faces and parallel edges for each of the following objects.

a) triangular pyramid

b) square pyramid

c) pentagonal pyramid

d) hexagonal pyramid

7. Determine the number of pairs of parallel faces and parallel edges for each of the following objects.

a) triangular prism

b) square prism

c) pentagonal prism

d) hexagonal prism

8. a) How many pairs of parallel edges does the net of a cylinder have?

b) How does this number compare to the number of pairs of parallel faces in a cylinder?