Lesson 1.2.6

1-99. See below.

b. Isosceles and equilateral

c. Square, rectangle, rhombus, kite, isosceles trapezoid

d. Square, regular pentagon, regular hexagon, and circle

1-100. See below.

a. Yes, this shape can be rotated twice (120° and 240°, although students may not know the measure of turn). The point of rotation is the central point where the three branches of the figures meet.

b. She rotates them 360° about any point.

c. Regular hexagon, rectangle, equilateral triangle, square, circle, rhombus, parallelogram, and regular pentagon

d. Circle and square

1-101. Not a polygon. However, students should note that all lines can be translated without changing (see part (b) of problem 1-88). Also, a tessellation that extends infinitely in all directions can be translated without changing.

1-102. See below.

a. It has 10 lines of symmetry which pass through opposite vertices and the midpoints of opposite sides of the polygon.

b. The polygon can be rotated about its center (which can be found by finding the point of intersection of the diagonals connecting opposite vertices). The angle of rotation can be 36° or any multiple thereof.

c. There is no translation that moves a regular decagon onto itself, so it does not have translation symmetry.

1-103. See below.


b. Graphs 2 and 6

c. Graphs 3 and 4

1-105. (a) and (b) are perpendicular, while (b) and (c) are parallel.
1-106. See below.

a. One possibility: $4(5x + 2) = 48$

b. $x = 2$

c. $12 \cdot 12 = 144$ square units

1-107. See below.

a. $\frac{4}{32} = \frac{1}{13}$

b. $\frac{13}{32} = \frac{1}{4}$

c. $\frac{1}{32}$

d. $\frac{39}{32} = \frac{3}{4}$

1-108. See below.

a. It looks the same as the original.

b. Solution should be any value of $45k$ where $k$ is an integer.

c. circle

1-109. See solutions below.

a:

b:

c:

d: