MATH 106
QUIZ 3

Answer all questions. Point values are indicated. Good luck.

1. (6 points) Provide the following information:
   a. A regular octagon has ______ lines of reflection symmetry and ______ rotational symmetries.
   b. The figure shown has ______ lines of reflection symmetry and ______ rotational symmetries.
   c. An isosceles trapezoid (that is not a rectangle) has ______ lines of reflection symmetry and ______ rotational symmetries.

2. (4 points) Add six small squares to the following drawings so that the first drawing has 180° rotational symmetry with respect to the point indicated, and so that the line “L” represents a line of reflection symmetry for the second.

   ![First Drawing](image1)
   ![Second Drawing](image2)

3. (1 point) How many planes of reflection symmetry does a right prism have if its bases are regular hexagons?
   a. five
   b. six
   c. seven
   d. ten
   e. twelve

   ![Image with planes of symmetry](image3)

4. (1 point) How many rotational symmetries does a right prism have if its bases are regular pentagons? (Include all axes of symmetry.)
   a. five
   b. six
   c. ten
   d. twelve
   e. fifteen

   ![Image with rotational symmetries](image4)
5. (3 points) A regular decagonal pyramid has \(10\) planes of reflection symmetry, ______ axes of rotational symmetry, and \(10\) rotational symmetries.

6. (2 points) If line "L" represents a plane of reflection symmetry, complete the isometric drawing of the shape so it has reflection symmetry.

7. (2 points) Sketch an axis of symmetry of rotational symmetry for each figure and determine the number of rotational symmetries about the axis drawn.
   a. Equilateral triangular prism
      \[
      \begin{array}{c}
      \text{3 rotational symmetries} \\
      \end{array}
      \]
   b. \[
      \begin{array}{c}
      \text{2 rotational symmetries} \\
      \end{array}
      \]

8. (2 points) On the dot paper below, draw the isometric representation congruent to the shape shown using a reflection.
9. (1 point) Which of the following would be the image of the figure transformed by a translation?

![Figure with options (a), (b), (c), (d), (e)]

10. (2 points) Draw the image of the figure rotated 180° clockwise around point O.

![Figure with O and rotated figure]

11. (2 points) Draw the reflection of the figure across line R.

![Figure with grid and reflected points]