TO Find central ∠ for rotational symmetry
360° ÷ # OF sides

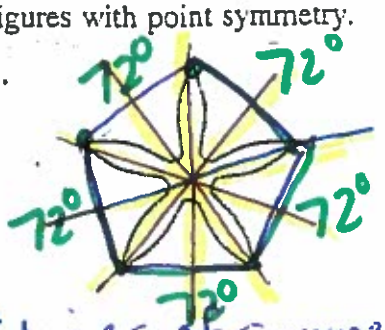
9.4 NOTES 1/30/18

Symmetry

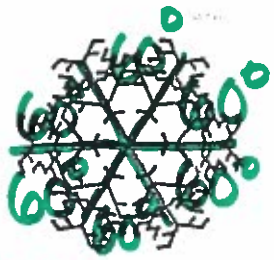
360° ÷ 5 = 72°

Symmetry

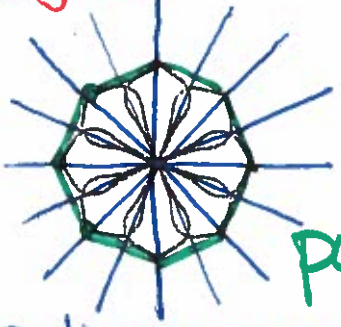
Find all lines of symmetry, then identify any rotational symmetries, and figures with point symmetry.

1. 

5 lines of symmetry
rotational 72°

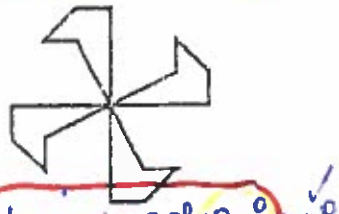
2. 

Hexagon
rotational 60°
point

3. 

point

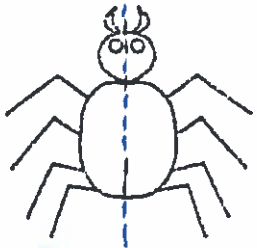
8 lines OF symmetry
45° rotational

4. 

rotational 90°, 180°, 270°
point

5. 

line symmetry

6. 

line

A figure has symmetry if there is an isometry that maps the figure onto itself.

- If the isometry is a reflection, then the figure has reflectional symmetry or line symmetry.
- A figure that has rotational symmetry is its own image for some rotation of 180° or less
- A figure that has point symmetry has 180° rotational symmetry.

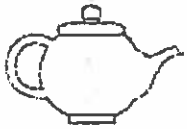
Name _____ Block _____ Date _____

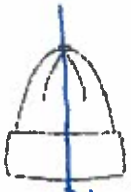
HW: TB p.494-495 (13-18, 25-32, 36-40)

Practice 9-4: Symmetry

Tell whether each three-dimensional object has rotational symmetry about a line and/or reflectional symmetry in a plane.

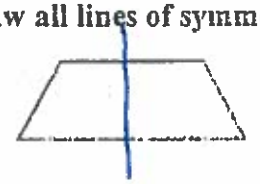
1. 
reflectional

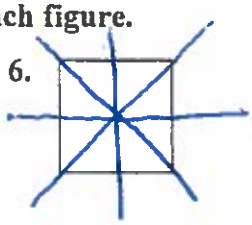
2. 
reflectional

3. 
reflectional (line)
rotational

4. 
line

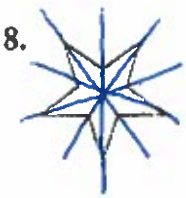
Draw all lines of symmetry for each figure.

5. 
vertical line

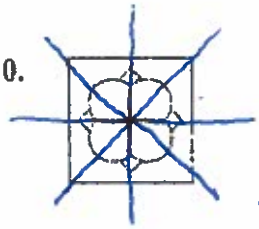
6. 

7. J none

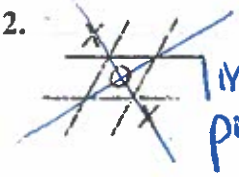
Judging from appearance, tell what type(s) of symmetry each figure has. If it has line symmetry, sketch the figure and the line(s) of symmetry. If it has rotational symmetry, state the angle of rotation.

8. 
360 ÷ 5 = 72°

9. 
line

10. 
line
point
rotational
360° ÷ 4 = 90°

11. 

12. 
line
point

13. ~~BOOK~~
line (horizontal)

14. 

15. 

16. 

Each diagram shows a figure folded along a line of symmetry. Sketch the unfolded figure.

17. 

18. 

19. 

20. 

21. 

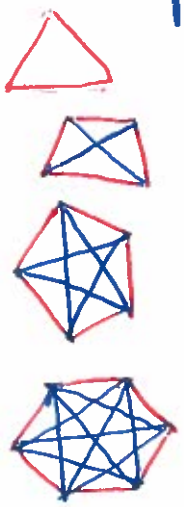
Lesson 1.4 • Polygons

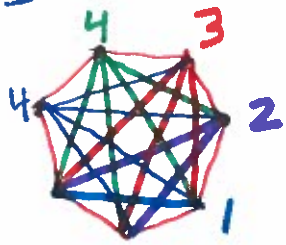
Name _____ Period B 1 Date 1/30

warm-ups.

For Exercises 1–8, complete the table.

Polygon name	Number of sides	Number of diagonals
1. Triangle	3	0
2. quadrilateral	4	2
3. Pentagon	5	5
4. Hexagon	6	9
5. Heptagon	7	14
6. Octagon	8	20
7. nonagon	9	27 35
8. decagon undecagon dodecagon	10 11 12	44 54





For Exercises 9 and 10, sketch and label each figure. Mark the congruences.

9. Concave pentagon *PENTA*, with external diagonal $\overline{ET}$, and $\overline{TA} \cong \overline{PE}$.

10. Equilateral quadrilateral *QUAD*, with $\angle Q \ncong \angle U$.

For Exercises 11–14, sketch and use hexagon *ABCDEF*.

11. Name the diagonals from *A*.

12. Name a pair of consecutive sides.

13. Name a pair of consecutive angles.

14. Name a pair of non-intersecting diagonals.

For Exercises 15–18, use the figures at right.

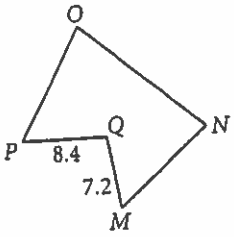
MNOPQ ≅ *RSTUV*

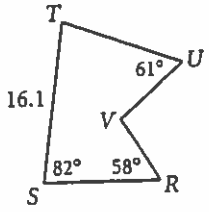
15. $m\angle N =$ _____

16. $VR =$ _____

17. $m\angle P =$ _____

18. $ON =$ _____





19. The perimeter of a regular pentagon is 31 cm. Find the length of each side.