Math 1 **Name:** KEY

Unit 9.4 Rotational Symmetry PRACTICE

Period: _____

Determine whether the figure has rotational symmetry. If so, describe the rotations that map the figure onto itself.

1. 

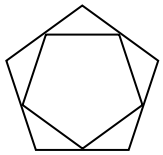
Yes, rotation of $90°, 180°$ *and* $270°$ about its center

2. 

Yes, rotation of $60°, 120°, 180°, 240°,$ *and* $300°$ about its center

3. 

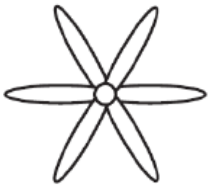
Yes, rotation of $45°, 90°, 135°, 180°, 225°, 270°, 315°,$ about its center

4. 

Yes, rotation of $72°, 144°, 216°,$ *and* $288°$ about its center

Does the figure have the given rotational symmetry?
If not, does the figure have any rotational symmetry and what is it?

5. $120°$ rotation



Yes

6. $180°$ rotation

no, no

7. $45°$ rotation

yes

8. $36°$ rotation

No, yes, rotate $40°, 80°, 120°, 160°, 200°, 240°, 280°, 320°$ about its center

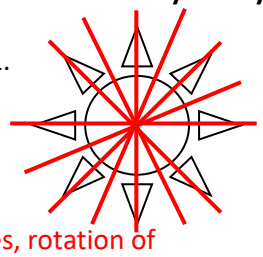
9. $180°$ rotation

yes

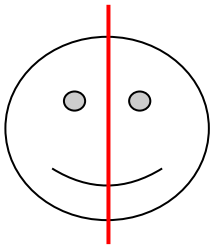
10. $90°$ rotation

no, no

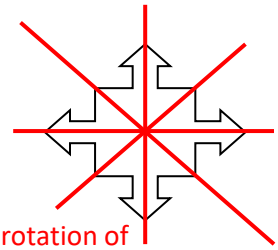
Determine whether the figure has rotational symmetry. If so, describe any rotations that map the figure onto itself. Then draw in any line symmetry lines.

11. 

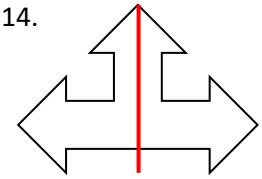
Yes, rotation of $45°, 90°, 135°, 180°, 225°, 270°, 315°$ about its center

12. 

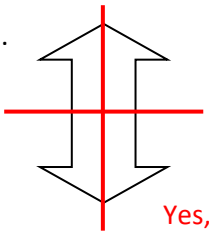
No rotational symmetry

13. 

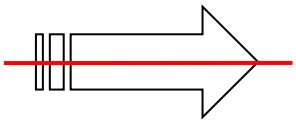
Yes, rotation of $90°, 180°$ *and* $270°$ about its center

14. 

No rotational symmetry

15. 

Yes, rotation of $180°$ about its center

16. 

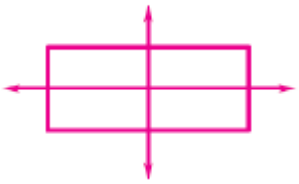
No rotational symmetry

Draw a figure for the given description. If it is not possible, then write "not possible".

17. A triangle with exactly two lines of symmetry

Not possible

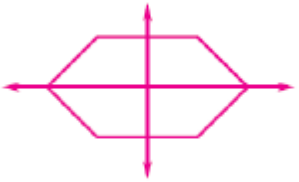
18. A quadrilateral with exactly two lines of symmetry



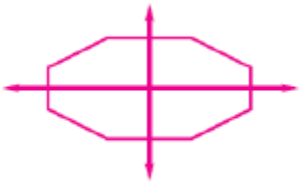
19. A pentagon with exactly two lines of symmetry

Not possible

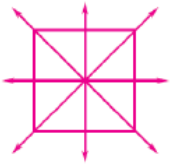
20. A hexagon with exactly two lines of symmetry



21. An octagon with exactly two lines of symmetry



22. A quadrilateral with exactly four lines of symmetry



Determine whether the entire word has line symmetry and whether it has rotational symmetry. Identify all lines of symmetry and angels of rotation that map the entire word onto itself.

23. DAD

Line of Symmetry? YES or (NO)

If YES, then draw in line(s) of symmetry

Rotational Symmetry? YES or (NO)

If YES, then describe the rotational symmetry: _____

24. dop

Line of Symmetry? YES or (NO)

If YES, then draw in line(s) of symmetry

Rotational Symmetry? (YES) or NO

If YES, then describe the rotational symmetry: 180° about center

25. WOW

Line of Symmetry? (YES) or NO

If YES, then draw in line(s) of symmetry

Rotational Symmetry? YES or (NO)

If YES, then describe the rotational symmetry: _____