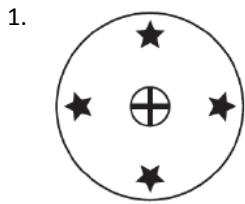
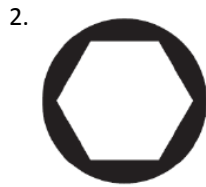


### Unit 10.6 worksheet Rotational and line Symmetry

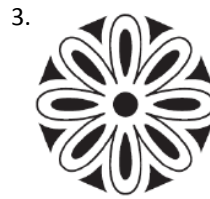
Determine whether the figure has rotational symmetry. If so, describe the rotations that map the figure onto itself.



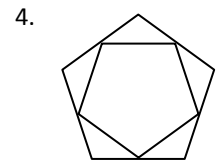
Yes, rotation of  $90^\circ$ ,  $180^\circ$  and  $270^\circ$  about its center



Yes, rotation of  $60^\circ$ ,  $120^\circ$ ,  $180^\circ$ ,  $240^\circ$ , and  $300^\circ$  about its center



Yes, rotation of  $45^\circ$ ,  $90^\circ$ ,  $135^\circ$ ,  $180^\circ$ ,  $225^\circ$ ,  $270^\circ$ ,  $315^\circ$  about its center

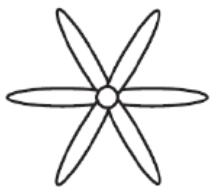


Yes, rotation of  $72^\circ$ ,  $144^\circ$ ,  $216^\circ$ , and  $288^\circ$  about its center

Does the figure have the given rotational symmetry?

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

5.  $120^\circ$  rotation



Yes

6.  $180^\circ$  rotation



no, no

7.  $45^\circ$  rotation



yes

8.  $36^\circ$  rotation



No, yes, rotate

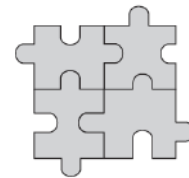
$40^\circ$ ,  $80^\circ$ ,  $120^\circ$ ,  $160^\circ$ ,  $200^\circ$ ,  $240^\circ$ ,  $280^\circ$ ,  $320^\circ$  about its center

9.  $180^\circ$  rotation



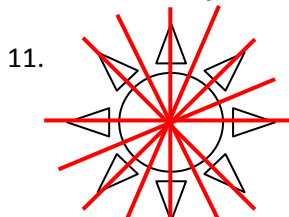
yes

10.  $90^\circ$  rotation



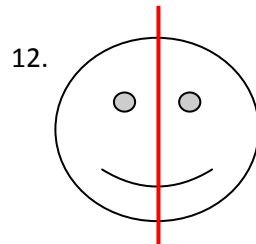
no, no

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.

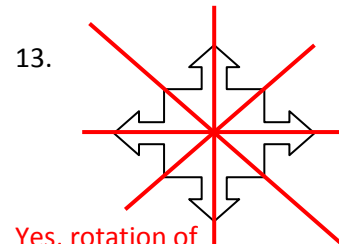


Yes, rotation of

$45^\circ$ ,  $90^\circ$ ,  $135^\circ$ ,  $180^\circ$ ,  $225^\circ$ ,  $270^\circ$ ,  $315^\circ$  about its center

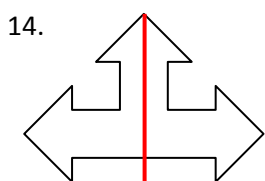


No rotational symmetry

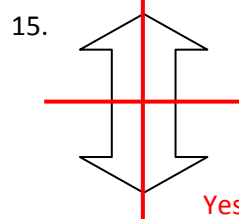


Yes, rotation of

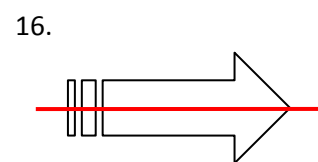
$90^\circ$ ,  $180^\circ$  and  $270^\circ$  about its center



No rotational symmetry



Yes, rotation of  $180^\circ$  about its center



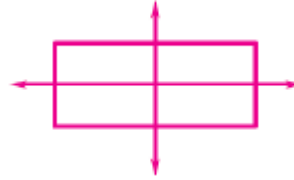
No rotational symmetry

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

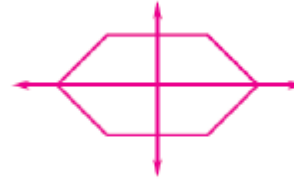
18. A quadrilateral with exactly two lines of symmetry



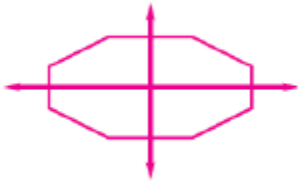
19. A pentagon with exactly two lines of symmetry

Not possible

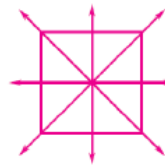
20. A hexagon with exactly two lines of symmetry



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 angles of rotation that map the entire word onto itself.

23.



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.



Line of Symmetry?

YES or **NO**

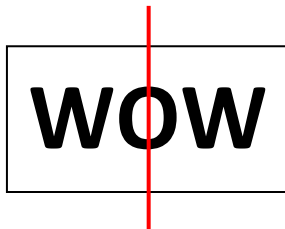
If YES, then draw in line(s) of symmetry

Rotational Symmetry?

**YES** or NO

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

25.



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: \_\_\_\_\_