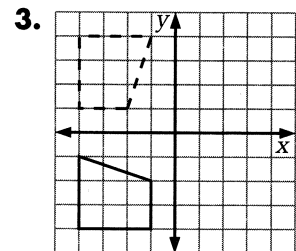
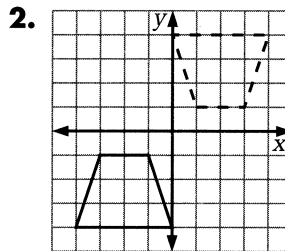
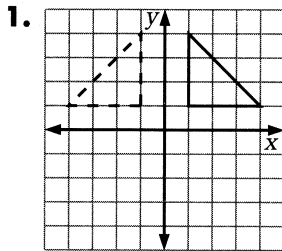


Practice 30

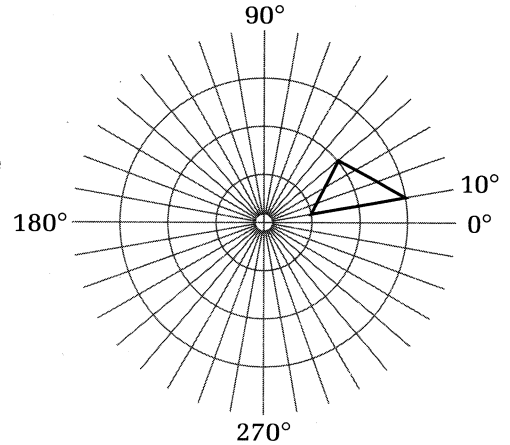
For use with Section 4-4

The graphs show rotations around the origin. Describe the direction and amount of rotation of each graph.



Copy the figure on polar graph paper. Draw each indicated rotation of the figure around the origin.

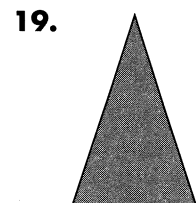
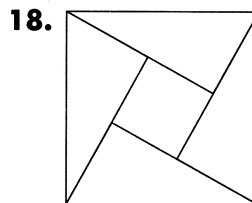
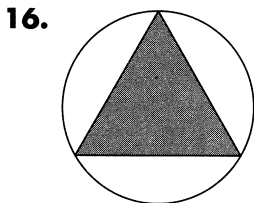
- | | |
|-------------------------|-------------------------|
| 4. 30° counterclockwise | 5. 90° clockwise |
| 6. 180° | 7. 90° counterclockwise |
| 8. 120° clockwise | 9. 60° clockwise |



Tell whether or not each object has rotational symmetry. If it does, describe the symmetry.

- | | |
|------------------------------------|-------------------------------------|
| 10. The pattern of 5 dots on a die | 13. The heads side of a penny |
| 11. The capital letter "N" | 15. The head of a bolt with 6 sides |
| 12. A window fan with three blades | |
| 14. The outline of a stop sign | |

Tell whether or not each figure has rotational symmetry. If it does, describe the symmetry.



20. **Open-ended** Make up a table listing vehicles you see every day together with a description of the symmetry of their wheels. You can find the symmetry by counting the identical "pie slices" in the wheel and dividing 360° by this number.