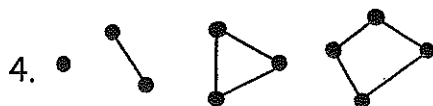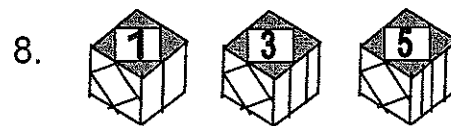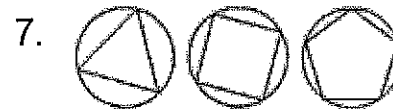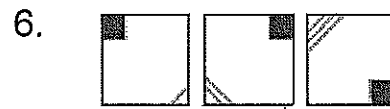**Finding Patterns:**
In this worksheet you will combine your inductive reasoning skills with your artistic skills.
First, you will use inductive reasoning to picture what the next shape will be in each pattern. Then you will draw what you visualize. Like an artist, you will be translating your thoughts into pictures.

I. Picture Patterns
Draw the next shape in each picture pattern.

1.

6.

2.

7.

3.

8.

4.

9.

5.

10.

II. Number Patterns

Use inductive reasoning to find the next term of each sequence.

11. 1, 2, 4, 8, 16, 32, _____

12. 1, 3, 6, 10, 15, 21, _____

13. 2, 6, 15, 31, 56, 92, _____

14. $\dfrac{1}{6}, \dfrac{1}{3}, \dfrac{1}{2}, \dfrac{2}{3},$ _____

15. 1, 1, 2, 3, 5, 8, 13, _____

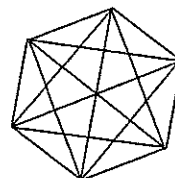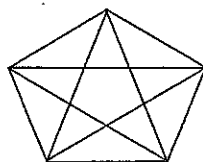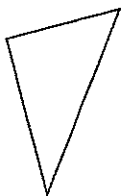16. 1, 3, 7, 15, 31, 63, _____

17. 1, 6, 16, 31, 51, 76, _____

18. 3, 5, 11, 29, 83, 245, _____

19. 0, 3, 8, 15, 24, 35, _____

20. Use the geometric and numeric pattern below to develop an algebraic expression and calculate the total number of diagonals in a decagon.

Polygon	Triangle	Quadrilateral	Pentagon	Hexagon		*n-gon*
Total # diagonals	0	2	5	9		