**Straws and Connectors Worksheet 5- Growing Zigzag Shape**

Pattern 3

**Figure 1 Figure 2 Figure 3**

**What do you notice?**

**What do you wonder?**

**Straws and Connectors Worksheet 5- Growing Zigzag-Shape**

1. **Visual Pattern. Draw figure 4**

**Figure 1 Figure 2 Figure 3 Figure 4**

1. **Table**

|  |  |  |
| --- | --- | --- |
| **Figure Number (n)** | **Number of Connectors(C)** | **Number Of Straws(S)** |
| ***1*** |  |  |
| ***2*** |  |  |
| ***3*** |  |  |
| ***4*** |  |  |
| ***5*** |  |  |
| ***10*** |  |  |
| ***20*** |  |  |
| ***n*** |  |  |

1. **a) Rule in words for finding the number of connectors for any figure number- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b) Rule in words for finding the number of straws for any figure number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**IV . Rule in Symbols a)**Rule for Connectors b) Rule for Straws

**V. Graph** . Plot the ordered pairs on the same coordinate plane. Connect all points on each set . Set 1 – (n,C) , Set 2 –(n, S)



Set 1

|  |  |
| --- | --- |
| **n** | **C** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Set 2

|  |  |
| --- | --- |
| **n** | **C** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. **Describe each graph.**
2. **What geometric relationship exists between the two graphs?**
3. **What conjectures can you make about the two equations and their graphs?**

**Straws and Connectors Worksheet 5- Growing Zigzag Shape**

1. **Visual Pattern- Draw figure 4.**

**Figure 1 Figure 2 Figure 3 Figure 4**

1. **Table-** Complete the Table below.

|  |  |  |
| --- | --- | --- |
| **Figure Number (n)** | **Number of Connectors(c)** | **Number Of straws(s)** |
| *1* | ***5=5+2(1)*** | ***4=4*** |
| *2* | ***7=5+2(2)*** | ***6=4+2(1)*** |
| *3* | ***9=5+2(3)*** | ***8=4+2(2)*** |
| *4* | ***11=5+2(4)*** | ***10=4+2(3)*** |
| *5* | ***13=5+2(5)*** | ***12=4+2(4)*** |
| *10* | ***25=5+2(10)*** | ***22=4+2(9)*** |
| *20* | ***45=5+2(20)*** | ***42=4+2(19)*** |
| *n* | ***5+2(n)*** | ***4+2(n-1)=2n+2*** |

1. **a)Rule in words for finding the number of connectors for any figure number . *The number of connectors is equal to 2 times the figure number plus 5.***

**b) Rule in words for finding the number of straws for any figure number. *The number of straws is equal to 2 times the figure number 2.***

**IV . Rule in Symbols**

**a)**Rule for Connectors b) Rule for Straw

C = 2n +1 S = **2n+2**

1. Graph

