**Straws and Connectors Worksheet 10a- Growing Tower 1**

**Figure 1 Figure 2 Figure 3**

**What do you notice?**

**What do you wonder?**

**Straws and Connectors Worksheet 10a- Growing Tower 1**

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

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

1. **Table**

|  |  |  |
| --- | --- | --- |
| **Figure Number (n)** | **Number of Cubes(c)** | **Number Of Square Faces(s)** |
| ***1*** |  |  |
| ***2*** |  |  |
| ***3*** |  |  |
| ***4*** |  |  |
| ***5*** |  |  |
| ***10*** |  |  |
| ***20*** |  |  |
| ***n*** |  |  |

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

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

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

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

**IV . Rule in Symbols a)**Rule for Cubes b) Rule for Square Faces

**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 - Growing Tower**

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 Cubes(c)** | **Number Of Square on the Surface** |
| *1* | ***1*** | ***6=2 + 4(1)*** |
| *2* | ***2*** | ***10=2 + 4(2)*** |
| *3* | ***3*** | ***14=2 + 4(3)*** |
| *4* | ***4*** | ***18=2+4(4)*** |
| *5* | ***5*** | ***22=2+4(5)*** |
| *10* | ***10*** | ***42=2+4(10)*** |
| *20* | ***20*** | ***82=2+4(20)*** |
| *n* | ***n*** | ***2+4(n)*** |

1. **ab) Rule in words for finding the number of squares of the surface of the tower for any figure number. *The number of squares on the surface of the tower for any figure number is equal to 2 + 4 times the figure number.***

**IV . Rule in Symbols**

**S = 4n + 2 ,**

**where S = the total number of squares on the surface of the tower**

**n = is the figure number**

**` 2 = the fixed number of squares at the top and at the bottom.**

**V. Graph**

