|  |
| --- |
| **Can We Expand** $(x+1)^{6}?$ |
| Let’s start by expanding $(x+1)^{2}$ | Now extend this to expand $(x+1)^{3}$ |
| Finally, try expanding $(x+1)^{4}$ |
| Now look at the **coefficients** of each of the terms:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| $$(x+1)^{1}$$ |  | **1** | $$x+$$ | **1** |  |
| $$(x+1)^{2}$$ |  |  | $$x^{2}+$$ |  | $$x+$$ |  |  |
| $$(x+1)^{3}$$ |  |  | $$x^{3}+$$ |  | $$x^{2}+$$ |  | $$x+$$ |  |  |
| $$(x+1)^{4}$$ |  |  | $$x^{4}+$$ |  | $$x^{3}+$$ |  | $$x^{2}+$$ |  | $$x+$$ |  |  |
| $$(x+1)^{5}$$ |  |  | $$x^{5}+$$ |  | $$x^{4}+$$ |  | $$x^{3}+$$ |  | $$x^{2}+$$ |  | $$x+$$ |  |  |
| $$(x+1)^{6}$$ |  |  | $$x^{6}+$$ |  | $$x^{5}+$$ |  | $$x^{4}+$$ |  | $$x^{3}+$$ |  | $$x^{2}+$$ |  | $$x+$$ |  |  |

Can you spot and continue the pattern? Do you know what the pattern is called? |