|  |  |
| --- | --- |
| **Fill in the Blanks** | **Sums of Squares and Cubes** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Summation** | **Expand** | **Use Standard Formulae** | **Simplify** |
| $$\sum\_{r=1}^{n}12r^{2}$$ | $$12\sum\_{r=1}^{n}r^{2}$$ | $$12×\frac{n(n+1)(2n+1)}{6}$$ | $$2n(n+1)(2n+1)$$ |
| $$\sum\_{r=1}^{n}(4r^{3}+3)$$ | $$4\sum\_{r=1}^{n}r^{3}+3\sum\_{r=1}^{n}1$$ |  |  |
| $$\sum\_{r=1}^{n}(r^{2}+2r)$$ |  |  |  |
| $$\sum\_{r=1}^{n}(8r^{3}-6r^{2})$$ |  |  |  |
| $$\sum\_{r=5}^{n}r^{2}$$ |  |  |  |
| $$\sum\_{r=5}^{n}2r^{3}+3$$ |  |  |  |
| $$\sum\_{r=1}^{2n}r^{3}-5r$$ |  |  |  |
| $$\sum\_{r=n}^{2n}6r^{2}$$ |  |  |  |