**Sequences and Series Formula Sheet**

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| **Arithmetic Sequence:** | The ***nth*** term ***an*** of an arithmetic sequence is given by:$$a\_{n}=a\_{1}+d(n-1)$$where ***a1*** is the first term and ***d*** is the common difference. |
| **Recursive Arithmetic Sequence:** | $$a\_{n}=a\_{n-1}+d$$  where ***d*** is the common difference. |
| **Geometric Sequence:** | The ***nth*** term ***an*** of a geometric sequence is given by$$a\_{n}=a\_{1}∙r^{n-1}$$where ***a1*** is the first term and ***r*** is the common ratio. |
| **Recursive Geometric Sequence:** | $a\_{n}=r∙a\_{n-1}$ where ***r*** is the common ratio. |
| **Geometric Series:** | The sum ***Sn*** of the first ***n*** terms of a geometric series is given by:$$S\_{n}=a\_{1}\left(\frac{1-r^{n}}{1-r}\right), r\ne 1$$where ***a1*** is the first term and ***r*** is the common ratio. |

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