All the formulas listed below should be memorized.
(Some of them may be found in Appendix A.)
Also, you are required to know how to use them in calculations.

(1) $\sum_{k=m}^{n}(ca_k+db_k)=c\sum_{k=m}^{n}a_k+d\sum_{k=m}^{n}b_k$	(4) *Summarizing* n *terms of geometrical progression with the first term* b *and common ratio* r: $b+br+br^2+\ldots+br^{n-1}=b\dfrac{r^n-1}{r-1}$
(2) $\sum_{k=m}^{n}c=c\sum_{k=m}^{n}1=c(n-m+1)$	(4a) *Summarizing terms of infinite geometrical progression* ($\lvert r\rvert<1$): $b+br+br^2+\ldots=\dfrac{b}{1-r}$
(3) *Summarizing* n *terms of arithmetical progression with the first term* a_1 *and common difference* d: $a_1+a_2+\ldots+a_n=$ $=a_1+(a_1+d)+(a_1+2d)+\ldots+(a_1+(n-1)d)=$ $=\dfrac{a_1+a_n}{2}n$	(5) *Telescoping:* $\sum_{k=m}^{n}(a_k-a_{k-1})=$ $=(a_m-a_{m-1})+(a_{m+1}-a_m)+\ldots+(a_n-a_{n-1})$ $=$ $=a_n-a_{m-1}$
(3a) $\sum_{k=m}^{n}k=m+(m+1)+(m+2)+\ldots+n=$ $=\dfrac{m+n}{2}(n-m+1)$	(5a) *Telescoping:* $\sum_{k=m}^{n}(a_k-a_{k+1})=$ $=$ $(a_m-a_{m+1})+(a_{m+1}-a_{m+2})+\ldots+(a_n-a_{n+1})$ $=$ $=a_m-a_{n+1}$
(3b) $\sum_{k=1}^{n}k=\dfrac{1+n}{2}n$	(6) *Harmonic numbers:* $H_n=\sum_{k=1}^{n}\dfrac{1}{k}=1+\dfrac{1}{2}+\dfrac{1}{3}+\ldots+\dfrac{1}{n}$ $\approx \ln n+\gamma+\dfrac{1}{12n}$, where $\gamma\approx 0.57721\ldots$ (Euler's constant)

Logarithms

$\log_a x^y=y\log_a x$	$\log_a\dfrac{x}{y}=\log_a x-\log_a y$	$\log_a(xy)=\log_a x+\log_a y$
$\log_a x=\dfrac{\log_b x}{\log_b a}$	$\log_a x=\dfrac{1}{\log_x a}$	$x^{\log_a y}=y^{\log_a x}$