Intermediate Algebra Formula Sheet

$ax^2+bx+c=0$ $\quad x=\dfrac{-b\pm\sqrt{b^2-4ac}}{2a}$ $\quad a^2+b^2=c^2$

$d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$ $\quad M(\dfrac{x_1+x_2}{2},\dfrac{y_1+y_2}{2})$

$\log_a x=y$ $\quad a^y=x$ $\quad S=\dfrac{a_1}{1-r}$ $\quad S_n=\dfrac{a_1(1-r^n)}{1-r}$ $\quad a_n=a_1r^{n-1}$

$S_n=\dfrac{n}{2}(a_1+a_n)$ $\quad a_n=a_1+(n-1)d$

f(x) = k $\quad$ y = mx + b $\quad y=a(x-h)^2+k$ $\quad (x-h)^2+(y-k)^2=r^2$

$\dfrac{(x-h)^2}{a^2}+\dfrac{(y-k)^2}{b^2}=1$ $\quad \dfrac{(x-h)^2}{a^2}-\dfrac{(x-k)^2}{b^2}=1$

$\log_a(MN)=\log_a M+\log_a N$ $\quad \log_a\left(\dfrac{M}{N}\right)=\log_a M-\log_a N$

$\log_a\left(M^N\right)=N\cdot\log_a M$ $\quad \log_a M=\dfrac{\log_b M}{\log_b a}$

$(a+b)^n=\sum_{i=0}^{n}\binom{n}{i}a^{n-i}b^i$ $\quad \binom{n}{i}=\dfrac{n!}{(n-i)!i!}$ $\quad r^{th}=\binom{n}{r-1}a^{n-(r-1)}b^{(r-1)}$