PRECALC FORMULAS
APPLICATIONS OF EXPONENTIAL FUNCTIONS

Compound Interest

$$A = P\left(1+\frac{r}{n}\right)^{nt}$$

$A =$ final amount
$P =$ principal
$r =$ interest rate
$n =$ number of times compounded in a year
$t =$ time

Compounded continuously
$A = Pe^{rt}$

Exponential Growth (Business/Human Pop.)

$$N = N_0\left(1 \pm r\right)^t$$

$N =$ final Amount
$N_o =$ initial Amount
$r =$ growth/decay rate
$t =$ time

Continuous Growth (Nature)

$$N = N_0 e^{kt}$$

$N =$ final amount
$N_0 =$ initial amount
$k =$ constant of growth/decay
$t =$ time

Newton's Law of Cooling

$$u = T + \left(u_0 - T\right)e^{kt}$$

$u =$ final temperature of object
$u_0 =$ initial temperature of object
$T =$ temperature of surrounding air
$k =$ rate of cooling
$t =$ time

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