Continuous Compound Interest Formula

$$A = Pe^{rt}$$

where

P = principal

r = Annual interest rate compounded continuously

t = time in Years

A = Accumulated amount at the end of t years

Ex Find the accumulated amount after 3 years if $1000 is invested at 8% per year compounded continuously

Soln: $A = 1000\, e^{0.08 \times 3}$ ($).

Ans.

In general, the compound interest formula is:

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

where

P = principal
r - nominal interest
m = no. of conversions periods per year
t = time in years.

e.g. compounded daily would imply $m = 365$.
compounded quarterly means $m = 4$.

Fact Letting $m \to \infty$, results in our formula

$$A = Pe^{rt}.$$