Continuous Compounding: \( \lim_{n \to \infty} \)
\[
A = P \left( 1 + \frac{r}{n} \right)^{nt}
\]
since \( r = \frac{A}{P} \)
\[
A = P \left[ \left( 1 + \frac{1}{n} \right)^{\frac{r}{t}} \right]^{nt}
\]
as \( n \to \infty \) \( \frac{1}{n} \to 0 \) and \( \Delta t = \frac{t}{n} \)

we said (showed) that \( \left( 1 + \frac{1}{n} \right)^{n} \to e \)
\( \) as \( n \to \infty \) \( \left( 1 + \frac{r}{n} \right)^{n} \to e \)

we now have \( A = Pe^{rt} \) for cont. comp. int.

Formulas for compound interest:
- \( t \) = \# of yrs
- \( A \) = accumulated amount
- \( P \) = Principal \( r \) Ideal

1. For \( n \) comp periods per year \( A = P \left( 1 + \frac{r}{n} \right)^{nt} \)

2. For continuous compounding \( A = Pe^{rt} \)

If $10,000 is invested @ 8\% find amount
after 6 yrs  a) comp quart.  b) comp cont.