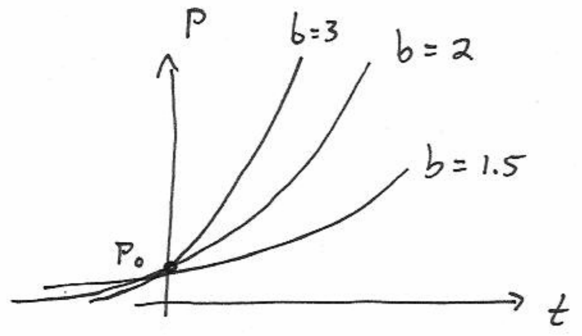
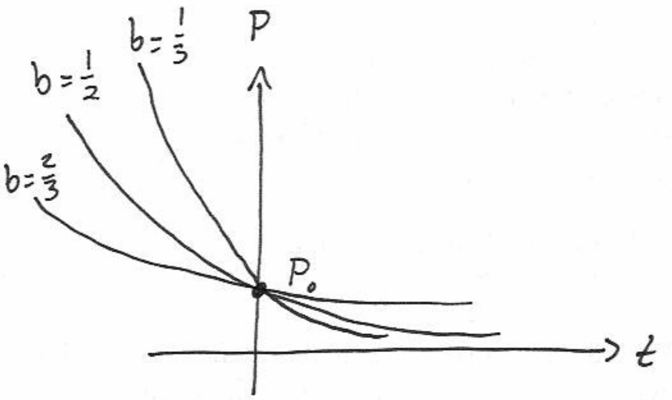
Fix P_0





$b > 1$	$b < 1$
exponential growth	exponential decay.

~~Base e: e ≈ 2.71828...~~

Compounded interest:

Invest \$1000 in an account which earns 5% annual interest compounded ~~monthly~~ annually. How much money after t ~~months~~ years?

- 0 ~~months~~ years: 1000
- 1 ~~month~~: $1000 + 1000 \cdot 0.05 = 1000(1.05)$
- 2 ~~months~~: $1000(1.05) + 1000(1.05)\,0.05 = 1000(1.05)^2$
- 3 ~~months~~: $1000(1.05)^3$
- t ~~months~~: $1000(1.05)^t$

Invest \$2000 earning 6% annual interest compounded monthly.

- 0 months: 2000
- 1 month: $2000 + 2000 \cdot \left(\frac{0.06}{12}\right) = 2000(1.005)$ $\quad \frac{6}{100}/12 = \frac{1}{2}/100 = 0.005$
- 2 months: $2000(1.005)^2$
- t months: $2000(1.005)^t$
- t years: $2000(1.005)^{12 \cdot t}$ $\quad \to P_0\left(1+\frac{r}{n}\right)^{nt} \to P_0 e^{rt}$ as $n \to \infty$

Invest \$400 earning 4% annual interest compounded daily

t years: $400\left(1 + \frac{0.04}{365}\right)^{365 \cdot t}$