

Review

1.1 Functions

- Domain
- Range
- increasing, decreasing, monotonic

Linear functions

- Slope-intercept form: $y = mx + b$ $m = \text{slope}$ $b = y\text{-int}$
- point-slope form: $y = m(x - x_1) + y_1$ $m = \text{slope}$ $(x_1, y_1) = \text{point}$

1.2 Exponential Functions

- standard form: $P = P_0 b^x$
 b is a positive number $\neq 1$
 P_0 is any real #.

- Compounded interest:

$$P = P_0 \left(1 + \frac{r}{n}\right)^{nt}$$

The Principal P of an account with initial investment P_0 at interest rate r compounded n times per year for t years.

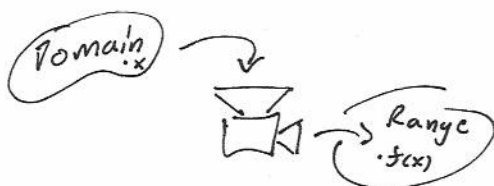
Compounded annually: $P = P_0(1+r)^t$
 monthly: $P = P_0\left(1 + \frac{r}{12}\right)^{12t}$
 weekly: $P = P_0\left(1 + \frac{r}{52}\right)^{52t}$

$P_0 = \$1000$ $r = 0.03$ $t = 10$

$n=1$: $P \approx 1343.92$
 $n=12$: $P \approx 1349.35$
 $n=52$: $P \approx 1349.74$
 $n=365$: $P \approx 1349.84$

$\vdots$
 $n \rightarrow \infty$: $P \rightarrow 1349.86 = 1000 \cdot e^{0.03 \cdot 10}$
 where $e \approx 2.71828...$

Compounded continuously: $P = P_0 e^{rt}$



$x \rightarrow y$ OK

$x \rightarrow y$
 $x \rightarrow z$ Not OK