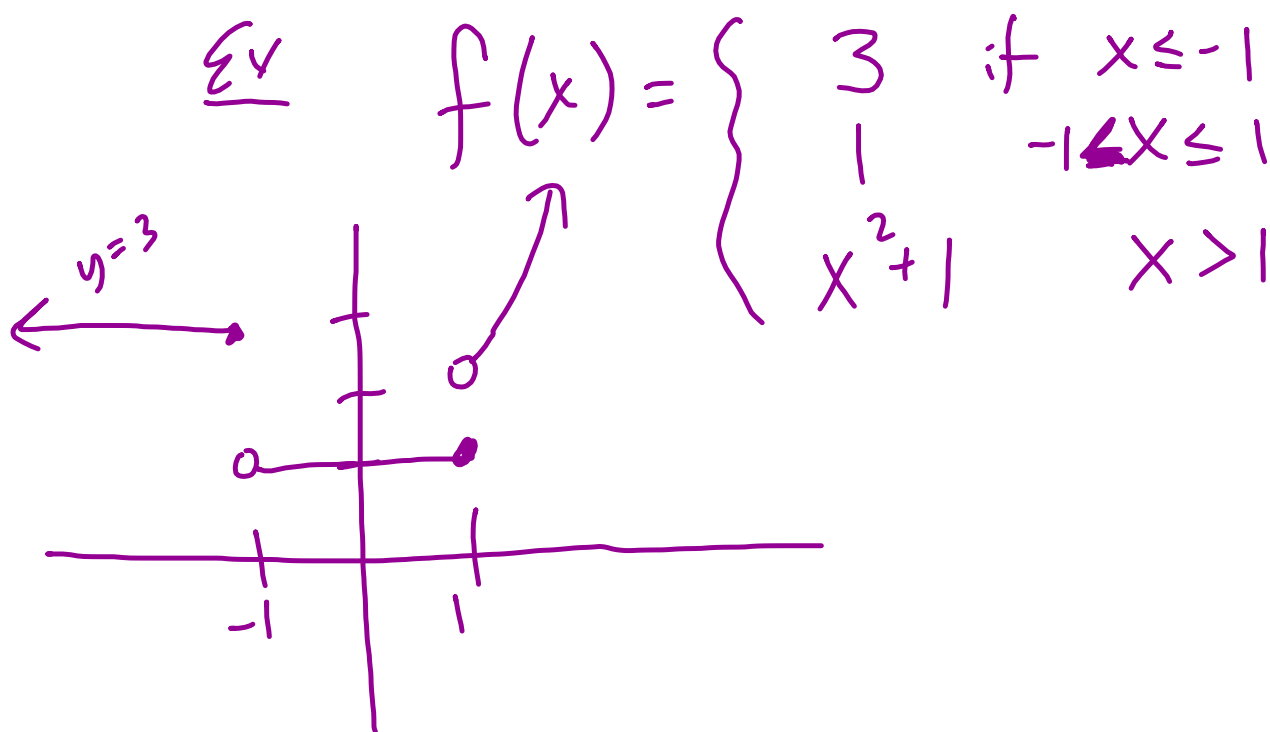
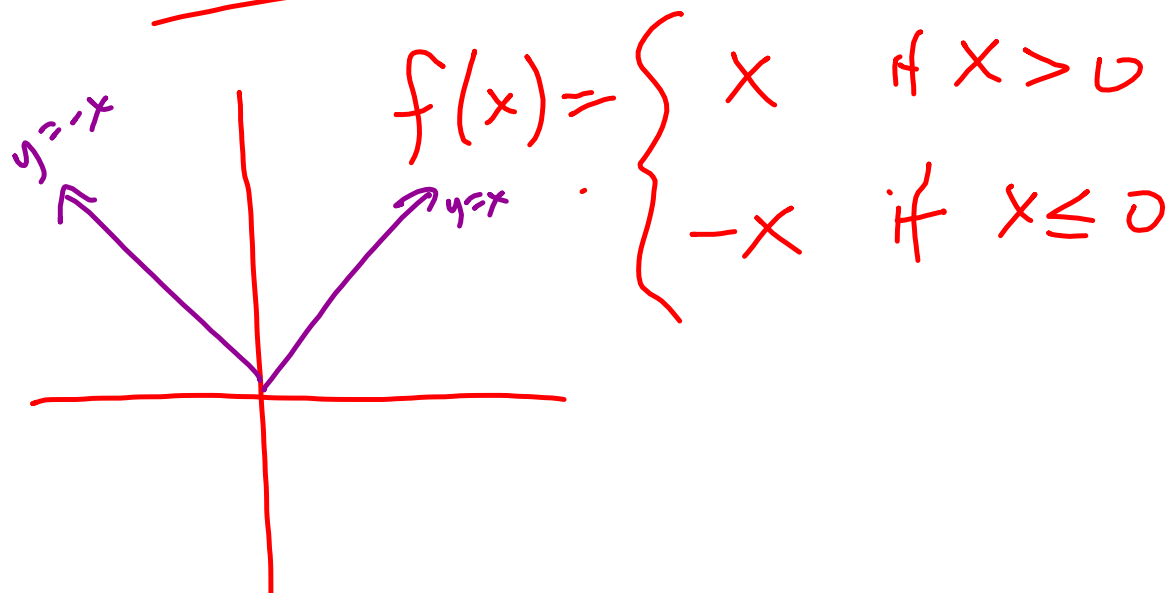
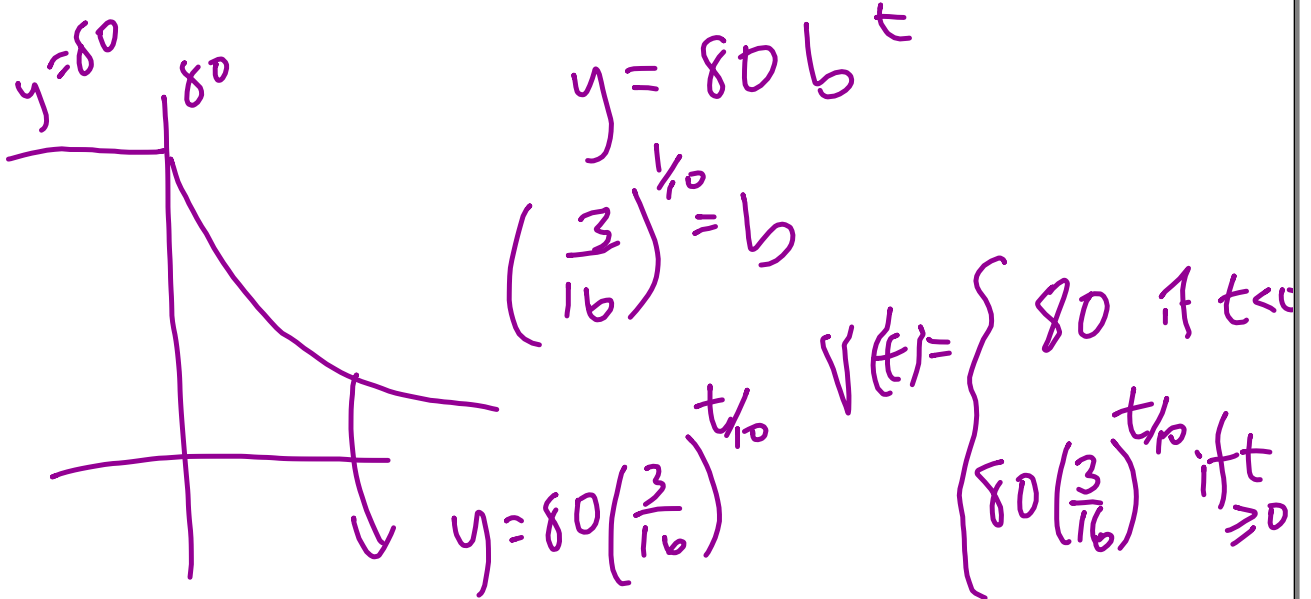


Piece-wise equations





- Interest

Time is worth money.

\$100 today is worth more
why? than \$100 guaranteed a year from now.
A: Investing the \$100 today in
a savings account yielding 5%
gives \$105.

earned 10% per year.

on \$100 then

over 20 years we have.

$$M(t) = 100(1.10)^{20} \\ = 672.75$$

100
110
121
132.10

Compounding frequency

Compounding annually at 10%

$$M(t) = 100(1.10)^t \quad \begin{matrix} t \text{ is} \\ \text{in years} \end{matrix}$$

— semi-annually (every 6 months).

0	100	$M(t) = 100 \left(1 + \frac{0.10}{2}\right)^{2t}$
$\frac{1}{2}$	105	
1	110.25	
1.5		
2		

— quarterly. $M(t) = 100 \left(1 + \frac{0.10}{4}\right)^{4t}$

— daily $M(t) = 100 \left(1 + \frac{0.10}{365}\right)^{365t}$