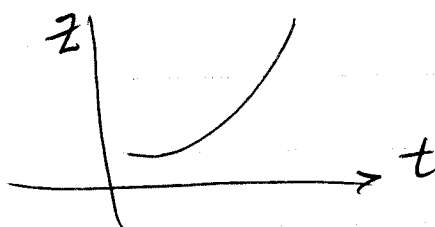
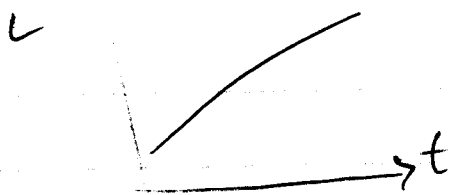


$t=0$ at 1960. Models for $y(t)$ = ppm of CO_2



1/2
20 oct of

a) $L(t) = \frac{8}{7}t + 315$

b) $Z(t) = 315(1.005)^t$ (b)

$C(t) = 4 \cos 2\pi t$

2. When will CO_2 level reach 550 ppm?

1. Predict CO_2 level in 2100. $t = \frac{2100 - 1960}{1} = 140$ yrs

1. a) $L(140) = \frac{8}{7}(140) + 315 = \underline{475}$ ppm.
This is the amount of CO_2 in 2100 if rise is LINEAR

b) $Z(140) = 315(1.005)^{140} = \underline{633}$ ppm
This is the amount of CO_2 in 2100 if rise is EXPONENTIAL

2. When will CO_2 level reach $y = 550$ ppm? Find t .

a) $L = \frac{8}{7}t + 315$

$L - 315 = \frac{8}{7}t$

$\frac{7}{8}(L - 315) = t = 206$ yrs
↑
550

b) $Z = 315(1.005)^t$

$\ln\left(\frac{Z}{315}\right) = \ln 1.005^t = t \ln 1.005$

$t = \frac{\ln\left(\frac{550}{315}\right)}{\ln 1.005} = 111$ yrs