Estimating Derivatives and the Derivative Function.

Numerical
Estimate the derivative at each of the points given below.

x	0	3	6	8	10	11	12	16	20
$f(x)$	100	?	70	?	55	?	46	?	40
$f'(x)$									

Symbolic
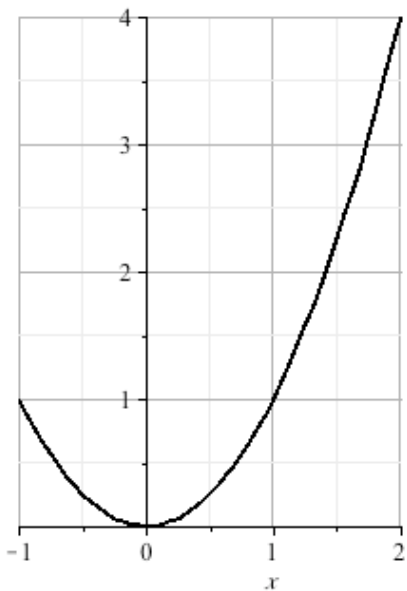For each of the functions below, estimate the derivative at the given point. Show calculations.
$f(x) = 5^x$. Estimate $f'(2)$.

$f(x) = x^3$. Estimate $f'(2)$.

Graphical
For each of the graphs below, estimate the derivative at a number of points. Then plot the points.
Can you find a function that gives the slope as a function of x?
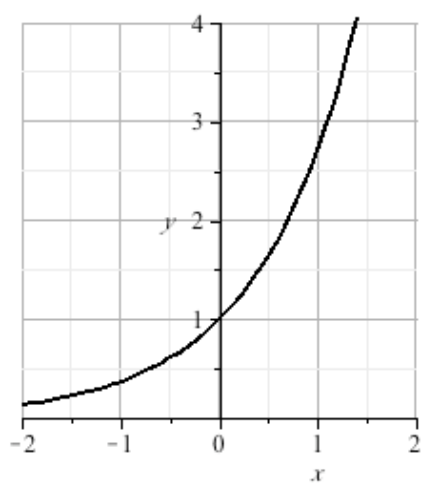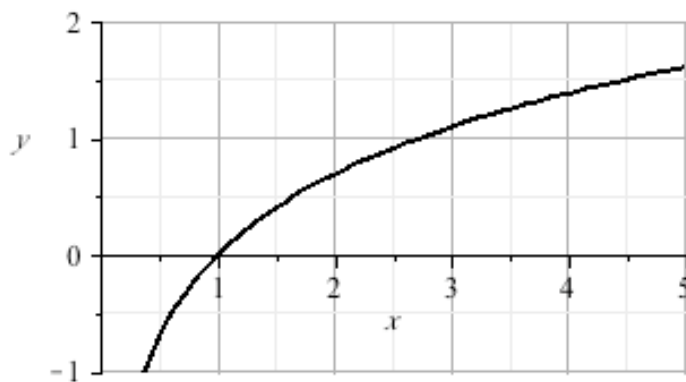*Problem 1*

x	-1	0	1	2
$f'(x)$				

Problem 2

x	0	1	2	3	4	5	6
f ' (x)							

Problem 3

x	-2	-1	0	1	2
f ' (x)					

Problem 4

x	0.5	1	2	3	4	5
f ' (x)						