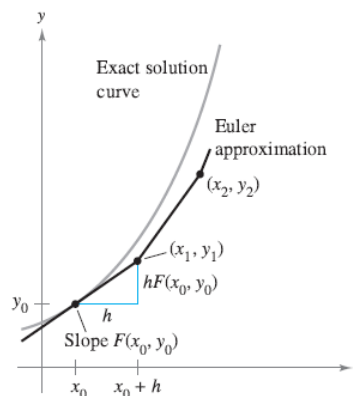


Euler's Method (pronounced Oiler's)

This method is used to find the approximate answer to a differential equation.

Need four things:

1. differential equation $\rightarrow y' = \dots$
2. a starting point
3. an initial slope
4. increments of increase



ex. Use Euler's Method with $h = 0.2$ to estimate $y'(1)$ if

$y' = y - 2$ and $y(0) = 4$

increment
x of slope
differential equation
initial point (0,4)

(x, y)	$y' = y - 2$	$\times h$	$= y' \cdot h$	$(x+h, y+dh)$
$(0, 4)$	2	0.2	0.4	$(.2, 4.4)$
$(.2, 4.4)$	2.4	0.2	0.48	$(.4, 4.88)$
$(.4, 4.88)$	2.88	0.2	.576	$(.6, 5.456)$
$(.6, 5.456)$	3.456	0.2	.6912	$(.8, 6.1472)$
$(.8, 6.1472)$	4.1472	0.2	.82944	$(1, 6.97664)$

ex. Use Euler's Method with $h = 0.2$ to estimate $y(2)$ if
 $y' = 2y + 1$ and $y(1) = 5$

(x, y)	$y' = 2y + 1$	h	$y' \cdot h$	$(x+h, y+dh)$
$(1, 5)$	11	0.2	2.2	$(1.2, 7.2)$
$(1.2, 7.2)$	15.4	0.2	3.08	$(1.4, 10.28)$
$(1.4, 10.28)$	21.56	0.2	4.312	$(1.6, 14.592)$
$(1.6, 14.592)$	30.184	0.2	6.0368	$(1.8, 20.6288)$
$(1.8, 20.6288)$	42.2576	0.2	8.45152	$(2.0, 29.08032)$