Sec 2.5
Solving problems involving Rates of Change

Work on *Investigate the math* on p107
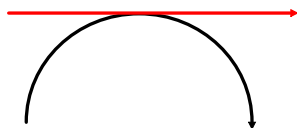**Parts A-D**

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Rule:
The instantaneous rate of change for at a maximum or minimum is always ZERO.

For quadratics, we can find the max/min by finding the vertex (complete the square), but for other functions we don't know any way to solve, so...
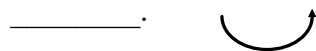   We find points where the slope of the tangent (IRC) is zero.

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To find this we....
-check secant slope to left and right of point, where it switches from positive to negative there is a _____.

-where it switches from negative to positive there is a

_____.

Remember also that sometimes the max or min is at the edge of an interval

　　Ex: There is no max or min for an exponential function, but if there is a restriction on the domain then the interval will create the optimum point.

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Example

Leonard is riding a Ferris wheel. Leonard's elevation $h(t)$, in metres above the ground at time t in seconds, can be modelled by the function $h(t) = 5 \cos \left(4(t - 10)^\circ\right) + 6$. Shu thinks that Leonard will be closest to the ground at 55 s. Do you agree? Support your answer.

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Read Ex 2 on p109

Notice:
-they solve the formula for h before they substitute

-they check for a positive and negative h and then average the values

-they check the points around the optimal point to see if it is a max or min

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Homework

Read Ex 1 and Ex 3

p111 # 1, 2, 3, 4, 7 (use complete the square)

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